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Reg. U.S. Pat. Off. Commercial Vegetable Grower Market Growers Journal

VOL. 9

No. 3

MARCH. 1961

Four-color cover photograph by J. C. Allen & Son shows harvesting of celery on much soil.

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LETTERS TO THE EDITOR

More Comment On "Harvest Of Shame"

Dear Editor:

After reading your editorial comments on the TV program "Harvest of Shame," I'm inclined to feel that your reactions are much the same as a spoiled, pampered child, who has been corrected. To say that I am surprised would not be entirely true, because I have been reading your editorials for several years and have found your opinion very much biased and sometimes seemingly blind to the real facts. Your position against organized labor is almost classical in its stupidity. Union members are some of the best customers vegetable

growers have.

The responsibility for the origin of such a film as "Harvest of Shame" must be assumed by yourselves and others who have failed to portray the true picture of the vegetable growing industry, who have re-fused to take a positive approach to a very

real problem.

You can do a lot of good for the vegetable growers of America by promoting unity and organization among growers, by taking a progressive attitude to the growers' problems. The fact that you do not agree with the unions of our country is not a sign that you or they are always right or always wrong. The fallacy that the American farmer is a rugged individualist is fraught with nonsense and economic hazards. He is not, and most growers are well aware of it.

Hiram, Ohio

J. M. Imars

Both AMERICAN VEGETABLE GROWER and AMERICAN FRUIT GROWER have offered some sane editorials on "Harvest of some sane editorials on "Harvest of Shame." If we do not fight back, we grow-ers will soon lose every freedom we have. Of course, such films are part of the propaganda that has been brainwashing a complacent public for many years. The film was televised into millions of homes be-cause the take-over of all crops is the

picture the union bosses are painting.

If you build pleasant and sanitary temporary homes for migrants, they leave them in such a mess that a newcomer would swear no clean place had ever existed there before. Why can't they be more like the Basques, whom western sheepmen brought in from Spain to tend their flocks (American labor didn't want the Ionely job)? The Basques don't live it up on Saturday night and blow their pay in a saloon. They save their money and end up rich. But then, they don't have to listen to an AFL-CIO mouthpiece telling them what to do.

Thomasville, Ga. Name Withheld

Dear Editor:

I noticed in your January issue the editorial about "Harvest of Shame." I agree with you that it was a shameful portrayal. After watching it, I was so incensed I almost boiled.

I think you should quickly get a program on the air to refute this "Harvest of Shame and expose the untruth of it. You might show vignettes of the lives of some of the better farm workers. CBS showed the worst, you could show the best.

Migrant workers don't lead such a bad life, when you come right down to it. They are the freest people in our country, having absolutely no worries they cannot help. Most of the year they have no rent to pay. They own no furniture, house, or car to

take care of, have no transportation worries. Give them a choice between what they are doing and living cooped up in a city apartment with its attendant evils, limitations, and smells, or on poor farm land where they have to worry whether or not there will be a crop, and I'll bet they'd choose their present life every time.

They're free to indulge their thoughts and passions, with no payments to meet or competition in making a living. They just get up each morning, see the glories of the sunrise, and breathe fresh air, with tension-free, manual labor all day. If their life is so miserable, why do they continue to bring great numbers of children into it?

No doubt this hullabaloo about the plight of the migrant farm worker is backed by unions trying to organize these workers.
Well, unions are okay if they live up to
the lofty ideals of their founders, but-let's not get to the point where our food supply will be threatened. Lisle, Ill.

Mrs. C. F. Noetzel

Dear Editor:

I'd like to add my two cents to the outcry gainst the recent "Harvest of Shame" against the recent "Harvest of Shame" television program. Documentaries like this are put on for propaganda purposes and carry no relationship to the actual situa-tion. Where was the USDA when this pro-gram was being prepared? Only the most extreme abuses were shown, actually representing a very small percentage of the in-

The average producers of our vegetables, fruits, and other food products deserve better consideration than this, and the public should not be exposed to such unrealistic hogwash about our most vital industry.

The harm an obviously biased program like "Harvest of Shame" can do is proven by the fact that it was shown in the Soviet Union within a week after it appeared here and was enthusiastically received by the Russian people. We have placed a vicious propaganda weapon in their hands. Terre Haute, Ind. Earl Petty

Dear Editor:

We, of course, are very unhappy with the whole "Harvest of Shame" episode. We've prepared an analysis of this film, and I am enclosing it along with the statement made by the AFBF Board of Directors at its January meeting. Washington, D, C. John C. Datt

American Farm Bureau Federation

The AFBF analysis of "Harvest of Shame" is a comprehensive evaluation. The report points out the numerous errors of fact and omission, the erroneous inferences based on inaccurate and incomplete data which made it unfair propaganda.

Debunking the testimony of one migrant worker who claimed she earned only \$1 a day picking beans, the analysis points out that the minimum rate in her area for such work is 60 cents a hamper, and most workers have little difficulty picking two ham-pers or more an hour. CBS questioned the same worker about her children, which she had not left in a nursery because it would have cost her 85 cents and she said she "Don't make enough to pay for it." The program failed to mention that this worker's husband has a full-time, permanent job and earns \$83.50 a week.

Growers can obtain a copy of the analysis from American Farm Bureau Federation, 425 13th St., N.W., Washington 4, D. C.—Ed.

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range of precision implements available, including the fast-hitch MF 141 swing frame Cultivator seen below. If you're looking for an extremely capable, all-job tractor with low operating costs and upkeep—with gas, LPG or special high-altitude engine—and with your choice of Time Payment Plans, try this versatile "one-man team"—the Massey-Ferguson 50!



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And now you can use it right up to 3 days before tomato harvest

Systox goes to work fast... gives virtually complete clean-up immediately. It even kills aphids and mites on undersides of leaves where ordinary chemicals often miss them. Yet it's harmless to pollinating insects and beneficial predators after

application. And it controls aphids and mites longer because Systox is a systemic. Absorbed into the sap stream, Systox goes right on protecting the entire plant including new growth. And Systox can now be used up to 3 days before harvest! For finer tomatoes and more of 'em, spray with Systox. It works!

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We've Been Overfeeding ASPARAGUS

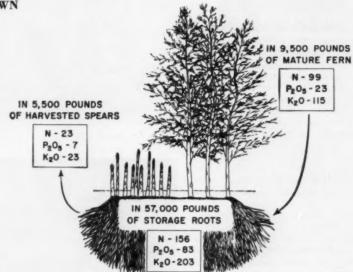
This unique crop, it has been found, uses fertilizer very conservatively. How to get high yields from mature plantings and save on fertilizer at the same time is pointed out here

By R. L. CAROLUS and L. D. BROWN Michigan State University, East Lansing

ASPARAGUS, probably indigenous to the Caspian area of the Soviet Union, was appreciated by the Greeks before the time of Christ, both as a vegetable and for its purported medicinal properties. Until the twentieth century, it was not extensively grown, and because of its high price due to low yields was a luxury enjoyed only by the very rich. In Europe even today, produced as it is almost entirely in ridged rows and harvested as white or blanched asparagus as it breaks through the soil, the cost is prohibitive of wide use.

Until about 1925 when the American public became familiar with the nutritive value of green asparagus, the processed product was largely marketed as blanched tips in pyra-

In 1925 asparagus grown for the



NUTRIENT ACCOUNTING IN SIX YEAR OLD ASPARAGUS (IN POUNDS PER ACRE)



Development of spears is almost entirely dependent on foods stored in the roots.

fresh market in the United States totaled 35,000 acres, and 30,000 additional acres were produced for canning; by 1950 fresh market asparagus acreage had increased to 44,000, and the acreage grown for processing had tripled.

California produced 25% of the fresh market and almost all of the

canning crop in 1925. By 1950 over half of the fresh market, but only half of the processed asparagus was produced in California. In the last decade acreage and production have increased 16%, with California in 1960 still producing 50% of the 160,-000 acre crop.

The plant, botanically classified in

the lily family, is uniquely different from any other widely grown commercially important crop. It is a herbaceous perennial with perennial fleshy roots, annual fibrous feeding roots, and an annual vegetative top. As the crop is harvested before any appreciable amount of photosynthesis can take place to supply food for growth, the development of the harvested spears is almost entirely dependent on the foods stored in the

Experiments conducted in 1959, using phosphate fertilizer "tagged" with radioactive phosphorus, indicated that less than 3% of the total phosphorus found in the harvested spear crop was supplied by the radioactive phosphate fertilizer ap-

As the field in which the asparagus was grown had not been fertilized for three years and was low in phosphorus by soil tests, the

(Continued on page 52)

The Fabulous Story of

TUTTLE'S RED BARN

The story of this roadside enterprise is one of willingness on the part of the Tuttles to grow produce their customers really want

By J. T. KITCHIN University of New Hampshire, Durham

66H 1—this is Hugh Tuttle, owner of Tuttle's Red Barn . . . By working our two irrigating systems overtime, we came through this week's heat and drought in fine shape, and have a wide variety of homegrown vegetables for your eating pleasure this weekend."

To radio listeners in Dover, N. H., that's a familiar sound . . . Hugh Tuttle's friendly invitation to the Red Barn. You might think a red barn was a place to keep livestock but such is not the case. It's a roadside stand from which is sold the produce from the Tuttles' 50-acre vegetable enterprise.

Hugh C. Tuttle, who runs the business just south of Dover, is the tenth generation of his family to farm these soils. Here is an example of a farming enterprise being passed on from one generation to the next over a period of 318 years. At present, three Tuttle generations are happy and busy at this historic, coastal New Hampshire farm.

Like anything else which has survived for over 300 years, the Tuttle farm has seen many changes. In 1909 Hugh's father, William Penn Tuttle, II, thought that he might be able to earn some added income if he raised vegetables and sold them to grocery stores in the area. At that time he had not yet assumed responsibility for management of the farm but he was given permission to try raising and selling vegetables if he wished. From that time on the Tuttle farm rapidly changed from a typical New England subsistence-type farm to a specialized vegetable farm.

For about 45 years Penn Tuttle raised and delivered vegetables to nearby stores. He can relate many interesting stories of his days delivering vegetables by horse and wagon. It was he who had the first farm truck in the area in order to speed his deliveries of fresh produce to the stores.

In 1920 when telephones came to the area he was quick to use this





Photo: Courtesy Soil Conservation Service

Terracing, contour strip cropping, farm pond create picturesque surrounding for Tuttle's Red Barn.

method of obtaining orders in advance. This was a big help in permitting him to bring only high quality, strictly fresh produce to the stores. Both Penn Tuttle and the stores which handled his produce became known for the quality of the vegetables which they grew and sold.

When Hugh Tuttle finished school, he took over the responsibilities of supervising the help and raising the produce and his father devoted most of his time to selling and delivering the produce. It was in 1955, with Hugh Tuttle now running the business, that the Tuttles decided that their reputation for growing and marketing high quality vegetables was such that they should attempt selling their produce at a roadside stand.

The Red Barn was selected as the place for the stand and it was renovated to be suitable for this purpose. Tuttle's Red Barn had been for many years a familiar landmark in the area and Hugh decided that this would



Hugh Tuttle inspects a late cucumber planting.

make a good name for his produce stand.

At first he continued to sell produce to the local stores as well as at his roadside stand. The demand at the stand steadily increased to the point where it became necessary to reduce and finally to discontinue deliveries to nearby stores.

When Hugh opened the roadside stand he made a decision regarding its management which he is still convinced was a good one. He decided to hire an experienced produce salesman to manage the stand. Hugh Tuttle establishes the overall policies in regard to pricing, quality of produce to be offered, services to be offered, and policies concerning the help employed at the stand.

Within this framework, Carlton "Doc" Jenness, manages the stand and supervises the help employed there. The stand employs two to five people with Hugh's wife and daughter frequently stepping in to help out during rush periods. With justifiable pride, Hugh says his attractive daughter is his best sales clerk. For the most part they employ high school or college boys for help at the stand.

The stand opens the third week in May and closes the third week in October. When the stand first opens, vegetable and flower plants, which are raised in the Tuttle greenhouses (Lord & Burnham, heated with a gravity hot water system), and cold frames, account for much of the business. The stand opens at 9:00 a.m. and remains open until 6:00 p.m. It is closed on Mondays.

With the management of the stand amply taken care of, Hugh devotes most of his attention to the operation of the greenhouses, cold frames, field plantings, and preparation of the produce for the roadside stand.

radio copy

CLIENT	Tuttle's	Red	Barn
START	Aug 22/	60	
WRITER	hawkins		



1	Anner: Many a housewife has been waiting for
2	this word from Tuttle's Red Barn, located on the
3	Dover Point Road in Dover! And that word is
4	YES They are ready Tuttle's Green Beans
5	and Wax Beans are now ready for all the women
6	who prefer to can their own vegetables for
7	the winter! And they're right at the peak of
8	perfection! All vegetables sold at Tuttle's Red
9	Barn come right from their own irrigated gardens.
10	They're grown right, and they're picked
11	just minutes before you buy them! You'll want
12	only the best green and wax beans for your
13	canning, and you'll get the best when you buy
14	them at Tuttle's Red Barn, on the Dover Point
15	Road in Dover! Vine-ripened tomatoes, crisp,
16	green cucumbers, sweet corn, shell beans all
17	available at Tuttle's Red Barn Tuttle's are
18	closed all day today, but they'll be open tomorrow,
19	and every day except Monday, from 9 AM to
20	6 PM. That's Tuttle's Red Barn, located on the Dover Point Road, Route 16 in Dover!

It pays to advertise is one slogan Tuttle really follows. This is script of typical Tuttle ad.

Hugh explains that the presence of the Strategic Air Command's Pease Air Force Base in the near vicinity has brought many families from other parts of the country to the area serviced by the roadside stand. Requests for vegetables such as okra, collards, turnip greens, and black-eyed peas which are unusual at roadside stands in New Hampshire, are quite common at Tuttle's Red Barn. As a result of this, several kinds of vegetables which are not

usually grown on most New Hampshire vegetable farms are raised at the Tuttle Farm.

Thirty-five or 40 different vegetables may be grown in a single season with several varieties and several plantings of certain of these. Lettuce is one of the specialties offered at Tuttle's Red Barn and they raise 10 different varieties. This year they raised four varieties of sweet corn including North Star, Golden Jewel,



Strong hives of bees insure good pollination of cucurbits which is necessary for normal yields.

By A. B. KENNERLY

WHEN A. H. Alex, entomologist for Texas A. & M. College, was studying pollination of cantaloupes down in Starr County, Texas, he found that you can't overcrowd bees in an area.

"You can put too many hives of bees in a field," Alex observes, "but they will not overcrowd the area. Only enough bees go to the flowers to get the available nectar and problem."

If there are too many hives in a field, the surplus bees, Alex discovered, will either go to other flowers or they will stay at home in the hive.

Cantaloupe growers in Starr County, one of the major cantaloupe areas in Texas, use different numbers of hives in their fields. They range from 6 hive per acre to 1 hive to 6 acres. "Good yields are obtained with either concentration," Alex explains, "and there is little difference in yield between the higher and lower concentrations of bees."

Alex went to considerable work to learn the pollinating habits of bees on cantaloupes in that area. He found that a tiny plot in the field with the greater supply of bees had 360 flowers. They averaged 25 bee visitors in 30 minutes and bees spent 9 seconds on each bloom. This plot set 66 melons.

In another field with the light supply of bees, a plot of the same size had 335 flowers. Bee visitors averaged 23 visits in 30 minutes, again with 9 seconds to the visit. The preharvest check showed 68 melons set.

Alex believes a good hive of bees will do a good job of pollinating cantaloupes on 5 to 6 acres. However, he recommends that beekeepers and truck growers learn by trial

You Can't Fool THE BEES

Here's the lowdown on their pollinating habits in cantaloupe, watermelon, and cucumber fields

how many hives are needed in the different fields.

Here are some things you can watch in such trials. Cantaloupes flower in March in Starr County, before hives have had time to build up to peak numbers of bees after winter hibernation. If you run into this problem, you may need more bees than if the flowering period occurs about the time beehives reach full strength. Also, wild flowers come into heavy bloom in Starr County at the same time as cantaloupes and they lure many of the bees away.

Farmers in the vetch-growing areas of Texas found this competition costly. They rented colonies of bees to pollinate their vetch fields but learned to their dismay that bees won't confine themselves to such boundaries. Bees were just as willing to pollinate vetch for the non-renting farmers. And for good measure, they pollinated all of the flowers in surrounding woods and pastures, not caring that they were supposed to be working for wages by the day for some of the farmers.

Cage plot experiments at College Station show that cucumbers require about the same distribution of bees as cantaloupes. "If bees are kept from the blooms," Alex points out, "a few seedless and otherwise inferior cucumbers will grow. This is especially true with the white spine or slicing types, but rarely occurs with the pickling types. But in any event, bees are necessary as pollinators if you're striving for a normal production of cucumbers and cantaloupes—or watermelons.

Cucumber pollination can hit the same snags as with cantaloupes. Even if there are competing blooms to attract the bees, a strong hive of bees can pollinate 5 or 6 acres. Later in the season when colonies have larger populations of bees and there is less competition from other flowers, a strong hive can pollinate 10 or 12 acres. If you have only a small acreage, there already may be enough bees close by to do a pollinating job. Bees may range as far as 5 miles on their foraging trips.

The first male flowers of cucumbers, cantaloupes, and watermelons appear 8 to 10 days before the first fruiting flowers, with male flowers exceeding by 10 to 1. "If you want early, high quality fruit which bring the best prices on the early market," reminds Alex, "it's necessary to bring in bees when the first flowers appear. This will assure adequate pollination."

Cucurbit growers expect to apply control measures when insect pests begin to damage the crop. But after the plants are in bloom, insecticides are a real hazard to bees. Aphids can be expected at this time. Parathion and malathion will control aphids, but they also kill bees.

Here's a way you can get rid of aphids without harming the bees. Bees are highly organized. If you don't believe it, step in front of a colony and you'll contact one or two of the guard bees which dart from the hive in your direction. If you molest the hive, they get help and will puncture you in a very organized way.

Their organization extends to their working hours. They're usually out of the fields by 4:30 or 5:00 o'clock of an evening. Now, the flowers of cucurbits co-operate also by lasting only one day, with fresh flowers appearing daily. If you spray after 5 o'clock, the bees have all left for home and won't be back at work until next morning, when they have fresh, unsprayed flowers to work on.

If you spray during the day, you'll kill the bees and lose most of your investment in hive rentals. And, too, the beekeeper won't smile at you when he comes for his hives of dead bees.

If you dust, some of it may drift to other plants or to the location of the bees. Airplane applications are especially liable to drifting and are hazardous to bees. It's a good idea to locate the hives of bees beyond a barrier of brush and away from the direction of wind drift. The brush is a handy refuge if you're working with the hives and the bees get mean.

The plan of applying poison after 5 o'clock in the evening when bees are home for the night worked well in tests at Texas A. & M. College. What I'm worrying about is what will happen if somebody should cross bees with lightning bugs so they can work at night.

The End.



Insta-Hitch on front-mounted hydraulic loader makes possible easy loading of implements. Rotary tiller is ready for hitching.



Retary tiller is placed on truck by driver who did not get off tractor to do the hitching, won't need to get off to unload tiller.

New TRACTOR HITCH

By R. T. MEISTER

THE best inventions are so simple you wonder why you never thought of them. Such an invention is the Insta-Hitch, which we have put to hard test at AMERICAN VEGETABLE GROWER'S experimental farm.

The Insta-Hitch is a natural extension of the three-point hitch. It makes it possible to hook up implements without getting off the tractor scat.

Inventor Cliff Stuart designed this hitch in the form of a triangle so that it works just as effectively on uneven ground. The hitch consists of two parts; one mounts on the tractor, the other on the implement.

The tractor is backed to the implement and the hitch lowered so that the hook catches the matching unit on the implement. When the hydraulic arms are raised, the two parts of the hitch close into position. Raising the lever locks the couplings together.

Contrast this simple hitching method to present-day methods of pushing and pulling to get the implement properly lined up to the tractor, pushing hydraulic arms to get them properly fastened to the implement and sometimes smashing or pinching a finger or two, and then fussing and fuming while trying to properly align the top point of the hitch—and you'll wonder why someone didn't think of this easier way a long time ago.

The Insta-Hitch is also adapted to a front-mounted loader to which

buckets, blades, or pallet fork lifts can be quickly attached or detached. A front-mounted loader with Insta-Hitch makes child's play out of loading and unloading implements on a truck for transport.

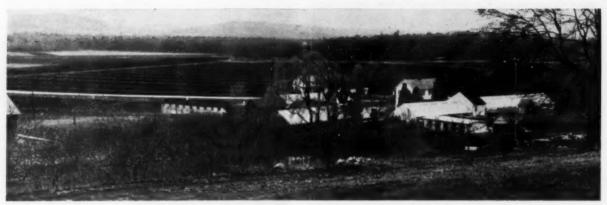
If you change implements frequently you will find the Insta-Hitch a time and temper saver. And if you move implements from one farm to another you will find this new hitch makes the job a lot easier. For more information about Insta-Hitch write Guy Lane, Powell Pressed Steel Products, Hubbard, Ohio, In Canada it is manufactured by McKee Brothers, Elmira, Ontario.



Haw Insta-Hitch works: Hook on tractor hitch engages unit on Implement. Raising hydraulic lift closes hitch. Raising hand lever locks it.



insta-Hitch fork attachment makes a low cost carryall. Insta-Hitch is designed so that it can be used just as easily on even as on uneven ground.



Beside cluster of form buildings stretch long rows of onions in black muck soil.

They Profit by Growing ONIONS and Bedding Plants

The Wesloskes of New Jersey have hit upon a happy combination of growing quality onions in their muck soil and flower and vegetable plants for hobby gardeners

By WARREN J. WELSH
Associate Agricultural Agent, Newton, N.J.

THE hobby gardeners who flock to the Sussex Produce Farm in Sussex, N. J., each spring to buy bedding plants never fail to rave about the black dirt these plants grow in. While the Wesloske family may not rave, they're mighty happy to be surrounded by the somber blackness of rich muckland.

It's over 60 years since the late Ignatius Wesloske began to grow celery and carrots in the muckland area of northern New Jersey. Managing the farm was a family affair and his children, Ted, Paul, John, Charles, and Mary, helped in the planting, cultivating, and harvesting of the crop.

Celery and carrots remained the major crops at Sussex Produce Farm until five years ago. The Wesloskes abandoned the crops their father grew when competition from the West forced drastic changes on the eastern grower. They not only met the challenge but conquered it with a new crop—onions—and a completely new outlet—bedding plants.

The two greenhouses which used to be filled with celery plants—enough plants for 50 acres—are now filled with flats of tomatoes, peppers, cabbage, and a variety of flowers. The Wesloskes divide up the chores around the farm and the greenhouses

are Mary's domain. Here, with the help of John, she starts sowing seed in March. The tomatoes, peppers, and cabbage are retailed in paks of a dozen plants, with some plants in individual peat pots. Wood, aluminum, and peat moss flats are used.

When Mary sowed the first flower seed in the greenhouse, she never envisioned that growing bedding plants would develop into a profitable business that is still expanding. Not only are the greenhouses (25 x 75 feet and 25 x 100 feet) completely devoted to bedding plants but cold frames are also used

Customers, many from distant areas, come back year after year to



Mary Wesloske Wesley and brother John are in charge of greenhouses. Once filled with celery plants, they are now used to grow quality vegetable and flower plants, a prefitable sideline.



Ted Wesloske holds flat of early harvest onions. Although he is experimenting with new hybrid varieties, bulk of crap is Golden Globe and Italian Sweet.

onion, shakes the dirt from it, tops it, and moves it along a belt to the crates.

The machine harvests about 800 bushels of onions per hour in an operation which used to require 40 people. Hand labor costs the Wesloskes 20 cents a crate; machine harvest 5 cents.

The onions are then packed in 10-, 25-, and 50-pound mesh bags for delivery to chain stores in the metropolitan areas of Washington, D. C., Philadelphia, and New York. And some of these bags of onions even go to sea. A main outlet for Sussex Produce Farm are the owners of ocean-going vessels who buy onions for their ships' provisions.

for their ships' provisions.

Not all their crop is wholesaled.
The Wesloskes have a profitable roadside market. Because of their location in the midst of a large resort
area, demand for quality fresh prod-



Best bulbs are selected each season. The seed is carefully washed, dried on canvas, treated for smut and maggot, then stored for next season.



Under watchful eye of Smokey, the family pet, Paul and Charles (on cultivator) cultivate young onlons. Crop is cultivated once every two weeks.

get these quality vegetable and flower plants. Perhaps an equally important selling point is the friendly advice they receive not only on how to care for the plants but ideas on how to use them in the garden.

While John and Mary tend the greenhouses, Ted is in charge of planting and spraying of vegetable crops, as well as caring for a small orchard. Paul and Charles handle the plowing, preparation of seedbeds, and cultivating.

March is one month in which the five Wesloskes don't find much time for loafing. This is the time for starting the bedding plants and preparing the fields for planting of the onion crop. Because of the poor market, they have dropped their onion acreage from 160 to less than 60 in the last five years. Although Ted is constantly testing new varieties, particularly hybrids, Golden Globe and Italian Sweet make up bulk of the crop.

Before planting, they apply 800 to 1000 pounds per acre of 5-10-10 fertilizer. The first planting of onions is in sets which are purchased from a firm in Lansing, Ill. About a quarter of the Wesloske crop is in sets, the rest direct-seeded about March 20. All seed is grown on the farm. Each season, they select the best bulbs. The seed is carefully washed, dried on canvas, treated for smut and maggot, then stored for the next season.

The onions are machine planted in rows 15 inches apart. Although a weed killer is applied right after planting, the crop is cultivated once every two weeks after it is up and side-dressed with nitrogen 10 weeks after planting.

after planting.

The sets begin to come in early in July and the seed onions are usually ready for harvesting near the end of July. They are machine harvested with a snout-nosed rig which digs the

uce is high. Peppers, tomatoes, cabbage, radishes, sweet corn, carrots, and iceberg, Boston, and romaine lettuce grown in the rich muckland are sold at roadside. This year they plan to plant 5 to 10 acres of carrots and 10 acres of lettuce.

Although Ted Wesloske explains that the goal of Sussex Produce Farm is quality rather than high production, they can boast an average yield of 750 sacks (50-pound) per acre of onions.

What has happened in the black dirt area of Sussex County is pretty typical of what has happened in much of agriculture. Growers have become more and more specialized in these fields and have had to meet changing times and conditions. Those who did not change with the times are fighting for survival or are out of business. Others, like the Wesloskes, who met the challenge of change are profiting in their new enterprise. The End.

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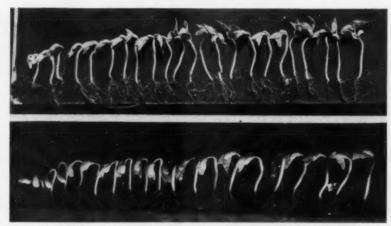
Model B capacities range from 3 to 25 cu. yds. per hr. Optional gas or electric power units. Screening attachments available.

Get complete details on efficient, low cost power shredding with Lindig Soil Shredders. See your local dealer or write factory.



1875 West County Road C, St. Paul 13, Minn.





Snap bean seedlings from firmed seed (top), unfirmed seed (bottom) one week after planting.

BEANS

Use a Firming Wheel

TO get earlier emergence and more uniform growth of snap bean seedlings, use a firming wheel mounted on your planter. In tests conducted at Maryland Agricultural Experiment Station, yields of plants from firmed seed were substantially increased.

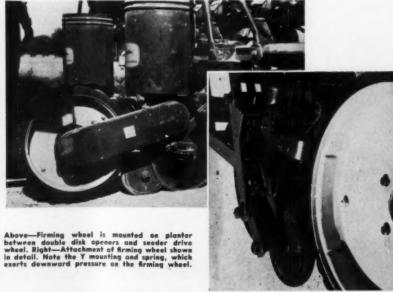
Seed firming is essentially the pressing of seed into the soil with uniform compaction of soil around and adjacent to the seed. This may be accomplished with any device slightly wider than the seed and exerting a downward force.

The device used in the tests was a wheel 8 inches in diameter with a semi-pneumatic tire. The tire tread was 1 inch in diameter unflexed; 11/4 inches in diameter when flexed. The wheel was mounted on a planter between double disk openers so as to roll on the bottom of the seed furrow as close as possible to the point where the seed dropped.

The firming wheel axle was attached to one end of an arm that pivoted about its center point. A spring was attached between the other end of the arm and the machine frame by a screw eye to provide adjustable downward pressure on the wheel.

The firming wheel passed over the uncovered seed, simultaneously firming the soil and pressing the seed into it. Loose soil filled the seed furrow after passage of the firming wheel.

In one test two different planters were used, one with firming wheels and the other without. Twelve hours after planting, it was observed that water absorption was taking place



AMERICAN VEGETABLE GROWER

MICHIGAN GROWERS ATTEST Jiffy-Pots are best



WALRAVEN BROTHERS, Essexville, Michigan With the use of Jiffy-Pots Mr. Walraven states, "Tomatoes were good in 1960 with 100% first bloom set." Jiffies save labor on weed control, quality and uniformity of the crop is improved, grown 3 plants per 3" Jiffy-Pot. Watermelons from 3" Jiffies were outstanding in quality and total yield. Jiffy-potted Muskmelons were grown by Walraven Bros. with outstanding results.



NORMAN ERICKSON, Coloma, Michigan NUMMAN ERICKSON, Celema, Michigan Mr. Frickson used 24/4" square Jiffy-Pots on late Tomatoes for the 1960 season. Six thousand plants were transplanted on 24/2 acres. For this crop the Jiffies gave a better distribution of labor and increased liveability, consequently increased yield. With earlier plantings Mr. Erickson states, "the thing I like about Jiffies is the fast rate of growth, ease of mechanical transplanting, labor cost saved and the earlier yields."



KARL MOSER, Coloma, Michigan
Mr. Moser used Jiffy-Pots for 20,000 Melons
and Cucumbers to secure earlier and outstanding increased total yields. He states, "JiffyPots were paid for before the plants left the
hot bed. There was less disturbing of the
plant than in any other method used. Abso-Jutely no transplanting loss, fast growth and excellent weed control during initial stages of field growth." A shorter, sturdier plant is produced in a Jiffy, saving the plants from wind damage when transplanted.



FRANK STEHLE, Essexville, Michigan
In using 2½" round Jiffies for Cantaloupes, Mr.
Stehle says, "Jiffy-Pots are much better than sod, do not disturb the roots, save weeding labor and yields are more uniform in the fields. Without Jiffies, the blight would have wiped out the Cantaloupes before harvest." Mr. Stehle transplants his entire crop with a mechanical planter.

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transplanting, for the best looking vegetables you have ever seen. Try Jiffy-Pots as Texas A & M did — with a yield of 70% more Melons by June 22, 1960 and 47% greater yield over the entire

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DOUBLE DUTY PLANTER

California Packing Company, Arlington, Wis., uses its regular vegetable row crop sprayer for applying dinitro chemical weed spray over newly planted rows of lima beans. Sprayer is attached to vegetable seed planter in tondem arrangement, as shown above. Boom is removed from sprayer and attached to rear of planter with nozzles directed down over each row. Flexible hoses carry spray material from tank to boom on planter. This arrangement not only makes more efficient use of equipment, but by applying weed spray at time of planting it saves labor as well.—John A. Schoenemann, Ext. Spec. Veg. Crops, University of Wisconsin.

and firmed seed were all swelled. Many of the unfirmed seed were still in a dry condition, due to their movement by soil turbulence to a shallow depth or to the fact that dry surface soil had fallen in and was loosely filled in around the seed.

A relatively constant depth of planting at 1½ inches was obtained with the firming wheel. There was less uniformity at the same depth for the seeds planted without the firming wheel.

Plant measurements taken a week after planting showed that seedlings from firmed seed were more uniform in height, in increased plant weight, and in length of plant parts. Results of a second test using like planters, one with and one without a seed firming wheel showed emergence similar for both but at harvest plants from firmed seed produced a greater average number of pods per plant.

The firming wheel mounting was designed by George J. Burkhardt, professor of agricultural engineering, University of Maryland. The 8-inch wheel used in the test is available commercially.

Harvesting Limas Mechanically

I T was just another quiet spring day on the Ramsey Slocumb farm in Hartsfield, Ga., when the 1960 "revolution" in lima bean harvesting took place.

A giant harvester moved down the lush, green rows of limas, stripping the plants of pods and foliage at the rate of an acre an hour. The week before in a nearby Colquitt County field 32 field hands had worked an entire day to accomplish the same thing.

Developed by Chisholm-Ryder Company, Inc., of Niagara Falls, N. Y., the tractor-mounted harvester was being tested in the field by Southern Frozen Foods, of Montezuma, Ga., who had contracted to buy 9 acres of baby limas from Slocumb.

The operator sat in the seat of the tractor and guided the harvester down two rows of beans at a time. Two men stood on a platform at the back of the machine, filling burlap bags with the pods and leaves discharged through two galvanized iron spouts.

In the wake of the harvester the plants were stripped of their fruit and foliage. James Taylor, field representative for Southern Frozen Foods, pulled one of the bare plants from the loose soil and examined it closely. New growth, barely visible, already had begun to push its way up through the plant.

"We hope to come back in about four weeks and harvest another crop," Taylor said. "The grower, of course, will make another application of fertilizer to speed the second growth."

C. D. Spivey, extension horticulturist of the University of Georgia



Workers fill bags with pods, leaves stripped from lima bean plants by mechanical harvester.

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This single insecticide gives outstanding, all-season protection!

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Treatment should be started early. Continued spraying with Guthion *alone* controls insects migrating into the fields. Guthion prevents build-up of infestations . . . protects against aphids, imported cabbage worm, flea beetle, spittlebug, leafhopper, tarnished plant bug, diamond-back moth and Colorado potato beetle. Safeguard your vegetables with Guthion. *It works!*

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°SEIDL BALLHEAD — Small, solid heads weighing about 3 to 4 lbs. Stems short with round, uniform heads. Valuable for crating and local sales where amall solid heads are in demand. This splendid cabbage has made a hit with market gardeners. It is earlier than Oregon Balhead. This fine cabbage first catalogued by us, increases in popularity each year. We offer a fine selection of our own strain. Postpaid. Pkt. 20c; ½ oz. 55c; so. 81.00; ½ lb. \$2.50; lb. \$6.00.

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College of Agriculture, said the harvester will revolutionize vegetable growing should it continue to prove successful.

"It's the difference between the grower making money and not," Spivey said after watching the harvester in action in the Slocumb field.

The stripping of the leaves from the plant is believed to be good since they keep the pods from packing closely in the bag. The beans picked in Colquitt County sat in the field for some four hours before being loaded on trucks and transported to the processing plant 112 miles away. They were shelled the next morning.

The CRCO bean harvester used to harvest the Georgia limas is adjustable to pick two rows planted on 24-to 36-inch centers. It is designed for use on every type of plant in which the pod hangs down, and it can pick 7 to 8 acres a day.

Chisholm - Ryder reports a new model incorporating all the functional design of the machine used in Georgia is now under construction. It will be of the bull wheel design.

The new model will be particularly adaptable for bulk handling, hydraulically, boxes holding up to 2800 pounds of snap beans. The two conventional pallet boxes used with the standard harvester hold no more than 1200 pounds.—J. O. Paine.

COLE CROPS

pound of seed was used, the main variety being Danish Ballhead.

Cultivating the tender seedlings proved to be a ticklish job. It had to be done with a single-row cultivator and with the blades just deep enough to skim the surface. The soil was kept as flat as possible so as not to bury the tiny plants. Hand hoeing was necessary for about four and one-half weeks.

Cost of direct seeding an acre of cabbage was about the same as transplanting — approximately \$20 per acre. Labor costs to thin the plants and hoe were \$42 an acre. Seed, gas used, transportation, and



Direct-seeded cabbage flourished on Doll farm.



Note size of head from direct-seeded braccoli.

Notes on Direct-Seeding

T took John Doll, Appleton, N. Y., only 45 minutes to plant an acre of cabbage last year instead of several men working eight hours to set transplants in the field. Doll was one of several growers who co-operated in direct-seeding trials under the direction of Ronald K. Allen, assistant agricultural agent in Niagara County, and Dr. E. B. Oyer, Cornell University, Ithaca.

Doll chose his test field, not because it was the best, but because it was a challenge. The soil was sandy, well-drained, and overgrown with weeds. After spraying the field with delapon to kill annual weeds and quackgrass, he plowed-down the field to a depth of 8 inches to insure a good seedbed. About 1000 pounds per acre of 10-20-10 fertilizer was bulk spread over the ground, then disked in to prevent burning the new seedlings when they pushed through the soil.

Using a Planet, Jr. planter (S. L. Allen & Co., Inc., 3419 N. 5th St., Philadelphia, Pa.), it took Doll 45 minutes to seed an acre. About 3/2

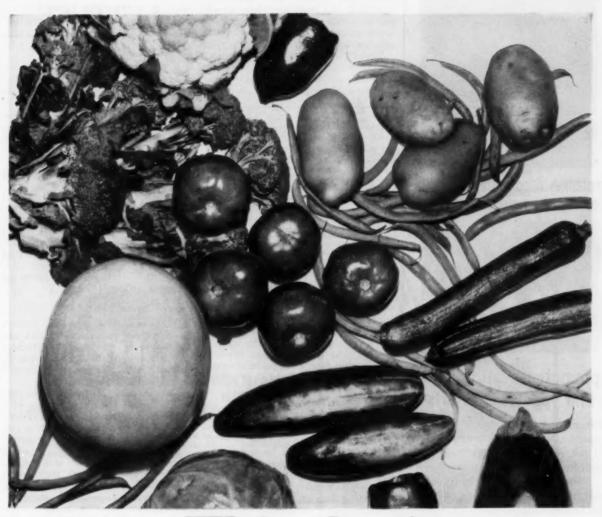
harvesting costs totaled about \$140 an acre; fertilizer and sprays, \$100, making a total production cost of \$300. Yield was 35 tons per acre (average for Niagara County).

Test trials with broccoli were conducted at Barker Central School Farm, Barker, N. Y., by Fred Barnum, farm manager.

Direct-seeding of broccoli had to be handled in a different manner than cabbage for several reasons. It had to be seeded in a somewhat higher population per acre—approximately 42,000 plants, thinned to about 24,000 plants.

Cost of the seed was about the same as for cabbage, and the same pattern of care was followed. The soil in the test field was sandy loam with a pH of 6.5.

One ton per acre of 10-20-20 fer-



now...use Thiodan on all these

Broader registration for Thiodan —powerful new insecticide—gives you effective, economical control of aphids and many other important insects.

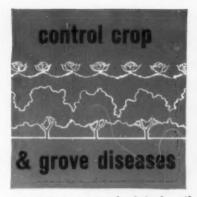
Thiodan cleans up heavy aphid infestations where other sprays and dusts fail. It outperforms previously available materials; fewer applications give positive, long-lasting control of a wide range of vegetable insect pests.

CROP	TO CONTROL	APPLICATION
Beans	Mexican bean beetle	Up to pod formation
Broccoli Cabbage Cauliflower	Cabbage looper, imported cabbage worm, diamond-back moth larvae, cross-striped cabbage worm	Up to formation of edible parts
Cucumbers, Melons, Squash	Aphids	Up to 14 days prior to harvest
Eggplants, Peppers	Aphids	Up to 7 days prior to harvest
Potatoes	Flea beetle, Colorado potato beetle, leafhoppers, aphids, southern armyworm, green stink bug, potato tuberworm, leaf-footed plant bug	Up to harvest
Tomatoes	Aphids, whitefly, Colorado potato beetle, flea beetle, green stink bug	Up to 7 days prior to harvest

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300 PARK AVENUE NEW YORK 22, NEW YORK tilizer was applied after plowing. The field was cultivated four times and irrigated three times. Parathion spray was used to kill insects; Vegadex for weed control.

Results of the test were excellent. Yield was about 31/2 tons per acre, with only the large center head considered in the yield figures. Barnum

If you plan to direct-seed broccoli or cabbage, here are the steps to follow as outlined by Assistant County Agent Allen:

- Get the seed in the ground early be-fore it dries out. Irrigate if necessary. Strive for approximately 14,000 plants per acre of cabbage; 24,000 of broccoli. Thin cabbage to 8 inches per foot; broccoli to 6 to 8 inches but no more than 12 inches.
- Keep weeds and insects out by spraying every four to seven days, or as your spray dealer recommends.
- If the season is late and you cannot get into the fields, use plants to save time and labor. A lot will depend on where you're located. Let your common sense be your quide.

estimated his cost of production at approximately \$370. This includes labor hired, fertilizer, and sprays. He was so pleased with the directseeding trial that he claims it's the only way he intends to plant broccoli in the future.—Reginald S. Watling.

Trim Cauliflower First

THE least expensive way to pack and ship cauliflower from California to eastern markets is to trim it fully, prepackage it by overwrapping with transparent film, and ship it in fiberboard boxes, according to a study conducted by Agricultural Marketing Service.

Researchers compared costs of shipping bulk cauliflower in WGA crates, pony crates, and wooden flats; and prepackaged cauliflower in four types of master containers.

Complete details of the study are contained in Marketing Research Report No. 414, Packaging California Cauliflower. Copies may be obtained by writing Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

LETTUCE

Head Lettuce Research

HERE are some of the latest research findings on head lettuce:

· Arizona Sunbright, a new tipburn resistant lettuce variety.

· Lettuce can be kept green in storage with a new senescence inhibitor.

Pink rib was less common at low

storage temperatures.

· Trimming off one additional lettuce wrapper leaf in the field reduced each carton weight by 2.4 pounds.

· Vegadex can be used safely and effectively as an herbicide in lettuce.

• One of the finest lettuce variety trial reports ever made.

Details on these and other interesting lettuce projects are described in Lettuce Research in Arizona, Report No. 189, from University of Arizona, Tucson, Ariz.

Novel Spray Rig

SIXTY-FIVE acres of lettuce, other raw crops, and alfalfa can be sprayed in one day with a tractor-drawn spray rig by Roy Sharpe, of Salinas, Calif. Sharpe sprays for mildew, aphids, and worms,

The all-steel, two-wheeled trailer pulled behind the tractor has a 450gallon capacity and is capable of putting out 100 gallons of spray to the acre. The gasoline engine for pumping the solution to the spray booms is mounted on top of the trailer tank.

The spray booms are attached to a tool bar under the center of the tractor which places them so the operator can easily observe them.

The photo shows Roy spraying eight 24-inch beds of lettuce for worms. The solution is applied at 320 pounds pressure as the rig travels at 4 miles an hour. The booms can be extended to 104 inches on each side of the tractor. Six nozzles distributing the spray onto the lettuce from several angles permit the spraying area to be thoroughly covered.-F. Leland Elam.



Roy Sharpe operating his sprayer on lettuce field. The rig can apply 100 gallons of spray to the acre.



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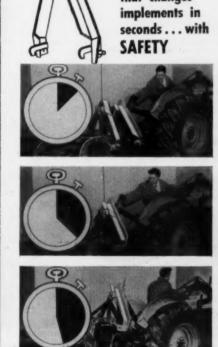
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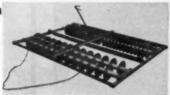
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PLANT GROWER'S CORNER

A Good Mix

FTER visiting plant growers and research stations during the past four months, it is obvious that everyone is working toward a standard planting mix-and that this mix is tending toward less and less soil, even to none at all.

Last season I mentioned in this column our interest in vermiculite alone or mixtures of vermiculite and peat; also, our interesting work with perlite and peat. The West Coast is sold on a fine sand-peat moss mix (referred to as the U. C. mix).

It appears that the era of composting soil, manure, sand, etc., is rapidly coming to a close.

As plant growers, what do we want in a good mix? Good drainage but also good water retention; good aeration; an adequate but not too great nutrient supply; freedom from diseases, nematodes, and weeds; easy to make ready to use.

Most of the artificial mixes contain 25 to 50% sphagnum peat moss. The remainder of the mix is either sand, perlite, or vermiculite. So you get good drainage as well as adequate water retention. The mixes are generally sterilized and most growers are using steam or methyl bromide.

The ideal growing media would combine the above prerequisites but would be ready to use without the added step of sterilization.

The basic ingredients of the mixes mentioned are practically void of any nutrients. If you make your own mix, you eliminate a lot of guesswork. You can add a known amount of nutrients to the mix and then you can plan subsequent feedings. In other words, by standardizing your mix you can master some of your most pressing problems, including damping off, soluble salts, nutrient deficiencies, and weeds.

University of California recommends a mix of 75% very fine sand (.05mm. to .5mm) and 25% sphagnum peat moss for growing vegetable and flower plants. For each cubic yard they add:

6 ozs. potassium nitrate 4 ozs. potassium sulfate

4 ozs. porassium surate
21/2 lbs. single superphosphate
41/2 lbs. dolomitic lime
11/4 lbs. calcium carbonate lim
11/4 lbs. gypsum lbs. calcium carbonate lime

This mixture contains very little nitrogen reserve and will require regular feedings. If nitrogen reserves are desired, they add 21/2 to 5 pounds of hoof and horn meal or dried blood meal. However, if these organic nitrogen materials are added, the mix should be planted within one week of preparation.

I visited recently one of the largest plant growing companies in this country. They use a definite mix and growth of their plants was extremely uniform and of excellent

Generally, the growers using these mixes will feed with every watering, using calcium nitrate, potassium nitrate, or a complete (NPK) feed. Iron is often added at regular intervals to enhance the green color.

Where little or no organic reserve nitrogen is used in the mix, some growers top-dress the paks or flats with dried blood a week or more prior to sale. If the paks are put on the shelves of a retail garden center and watered frequently, the organic nitrogen will help maintain the quality of the plants.

Drainage Is Important

Now is a good time to check the drainage holes in the paks you use for plant growing. Problems developed last year where paks had insufficient holes for drainage or where the holes were not punched clear through. Plants in an excellent mix but in poorly drained containers will quickly show symptoms similar to high salts or damping off.

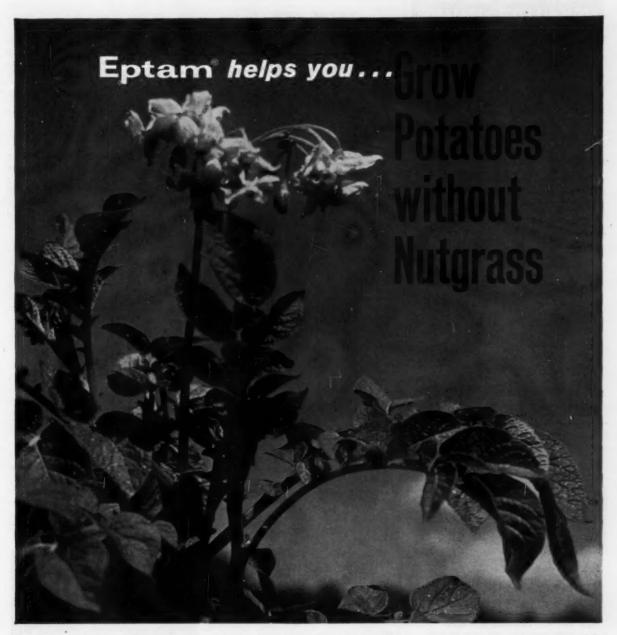
Moisture in Plastic Houses

The moisture problem on the inside of single layer plastic houses is serious in all parts of the country whether the houses are in a desert location or in a very humid area. Inadequate ventilation is generally one of the biggest causal agents. Opening some roof vents for an hour and running the heat will help decrease this problem. Adding an inner layer of plastic (with 1 to 2 inches of air space between) will minimize the problem.

Temperature stratification is a current topic of discussion among greenhouse operators. When convection heat is used and no circulation provided, definite temperature layers develop and, unfortunately, the coldest air is down where the plants are.

Work at Kentucky and Mississippi has recently been reported on the value of breaking up the stratification. Considerable interest is being shown, for example, in air turbulators for bringing the warm air from the top of the greenhouse down to the plant area.-Ray Sheldrake.

Complete details on U. C, mix are included in The U. C. System for Producing Healthy Continuer-Grown Plants, available at \$1 per copy by writing Office of Information, University of California, Davis, Calif. Please make checks payable to Regents of University of California.



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MELONS

Transplant for Earliness

THEY'RE growing watermelons a new way in Texas this year. Many growers have adopted the new technique for the growing of top quality melons. Instead of the conventional direct seeding, they're growing from transplants.

The decision to switch from direct seeding to transplants is based on five years of research and one year



Watermelon seeds started in 3-inch Jiffy Pots. When ready for the field the young seedlings are transplanted and protected by hot tents.

of field tests conducted by Dr. H. T. Blackhurst, professor of horticulture, and Dr. Clyde C. Singletary, extension horticulturist, both at Texas A. and M. College, College Station. Results of this extensiver research have shown that growers can obtain earlier yields and substantially increased yields per acre under the new system.

Using the new method, growers in the concentrated watermelon growing counties in eastern Texas can harvest their crop seven to 21 days earlier than normal, and thereby obtain higher prices.

Plants are started in peat moss pots and raised in a greenhouse or hotbed for the first three weeks. Then they are transplanted into the field where they are protected by hot tents for an additional three weeks, or until the weather has become warm. Transplant shock and root damage are eliminated by transplanting the pot and plant together.

Blackhurst and Singletary have outlined the steps on growing watermelon transplants.

• Seed five to seven watermelon seeds in 3-inch square peat pots in a starting media of equal parts of clay, sandy loam, and compost. Fill the pots to a depth of 2½ to 2¾ inches.

 Press the seeds into the mixture about ¼ inch, then put ¼ inch of sand on top of the media to prevent damping off. Water the pots thoroughly.

• Keep the seeded pots in a greenhouse or hotbed. Hold temperature at 80° F. until germination is complete, then reduce to 70 to 75° F. During the last week before transplanting, lower temperature to 60° F. to harden the plants for transplanting into the field.

• When a good stand develops, thin down to two or three plants.

• Three weeks after seeding, set transplants in the field by hand or machine. Place them in the ground deeply enough to firm the soil well over the top of the spot to prevent the plant from drying out. Apply one pint of starter solution to each plant when setting out.

• Immediately after transplanting, place a hot tent over each hill. Cut a small window into each hot tent for ventilation on the side away from the prevailing wind. As the weather becomes warmer, enlarge the slit. After about three weeks in the field, the hot tent may be completely opened or removed if the weather is favorable.

One of the advantages of the new transplant-hot tent growing system is that the grower is guaranteed virtually a 100% stand. There is rarely any need to replant.

Continuous Cover

CANTALOUPES grown under continuous plastic shelters emerge faster and set fruit earlier than cantaloupes grown under individual glassine caps, reports C. Allan Shadbolt, assistant olericulturist at University of California, Riverside.



Shadbolt compares growth of plants under glassine caps and under continuous plastic covers.

In tests conducted at the university's Imperial Valley Field Station, melons under continuous covers of polyethylene film were two to four times as large early in the season as those under glassine caps. Their moisture and nitrate-nitrogen content was also higher.

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AMERICAN VEGETABLE GROWER

Willoughby, Ohio

experimental plots produced 24 to 32 pounds of melons per plot under continuous covers, compared to less than 5 pounds from plots under individual cover.

Cost of the polyethylene film is about \$50 an acre-almost twice as much as glassine paper. However, Shadbolt thinks labor cost might be less on continuous covers because they lend themselves well to automatic application. During the season the covers are gradually raised from the ground on their southern side to allow ventilation. This system provides access for weeding without the necessity of removing and replacing the cover. Main advantage of the continuous cover is the earliness of the crop. Growers should be able to market their melons at early-season peak prices.

Wilt-Resistant Watermelon

SHIPPER, a new round-type watermelon, has been released by Mississippi Agricultural Experiment Station. Because of its high wilt-resistance, Shipper can be grown successfully on soils previously cropped with watermelons.

Shipper is round to slightly oblong and has a dark green rind,



Shipper is wilt-resistant, can be grown successfully an land previously cropped with melons.

about one-half inch thick. The rind is tough with no weak points. The flesh is deep red, solid, and very firm.

Plant pathologist Dr. S. S. Ivanoff, developer of the melon, reports it is as early as Charleston Gray and Black Diamond. Shipper will produce 30- to 35-pound melons. Seed will be available through commercial sources this year.

PEPPERS

Can You Imagine That!

SPREAD of the troublesome tobacco mosaic virus may be lessened by a substance common to every American household—milk. There are two main ways in which the virus is spread—by aphids or plant lice which carry the ultramicroscopic particles of the virus from diseased to healthy plants and by contact or manual means. If virus gets on a worker's fingers and a healthy plant is rubbed lightly, disease results.

Tests were conducted at Mississippi Agricultural Experiment Station using young pepper plants. Fingers were dipped in a virus extract from a diseased plant and the test plants were rubbed lightly on leaves or stems.

When the plants were sprayed with milk—just plain Grade A milk—before rubbing the leaves with virus, the disease was reduced from over 90% to 10%. When the stems were rubbed, spraying beforehand with milk reduced the amount of disease from over 50% to 10%. The milk spray was effective up to 24 hours after application.

In another test, after the worker's hand was dipped in the virus it was dipped in milk before rubbing the stem of a pepper or tomato plant. The amount of disease was reduced from over 50% to zero in pepper and from 90% to 15% in tomato.

Dr. W. W. Hare, plant pathologist at Mississippi Agricultural Experiment Station, and Dr. G. B. Lucas, North Carolina State College, have been co-operating on the tests with milk and the spread of the virus during the last two years. They have made the following recommendations for reducing damage by tobacco mosaic virus to both pepper and tomato:

1) Rotate or sterilize the soil in seedbeds since tobacco mosaic virus can be carried over in infested plant

2) Wash hands thoroughly with soap and water before any operation in which the plants are touched or handled.

Do not smoke while working with the plants.

4) Dip the hands in milk at frequent intervals when many plants are being handled—as in pulling—and dip the entire plant in milk before transplanting.

5) Control insects, particularly aphids, as well as possible.

A Control Program

THE year 1959 is not a year Delaware pepper growers like to remember. A severe attack of bacterial spot disease coupled with an attack of European corn borer reduced yields from the normal average of 4 tons per acre to 1 ton. But research now being conducted at Delaware Agricultural Experiment Station, Newark, shows promise of

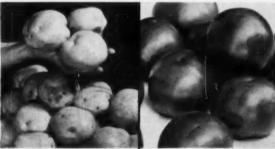
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full use of potash when magnesium is lacking. Plant growth is slowed, rooting retarded. Magnesium availability must be balanced to potash fertility for maximum results.

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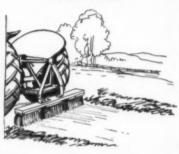
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boosting average state yields of the valuable crops by 2 tons per acre.

Based on this research on control of bacterial spot disease, the following recommendations are being made for the 1961 growing season:

Use land not planted to peppers or tomatoes for at least one year-preferably two years.

Use transplants free of bacterial spot disease.

Transplant by May 10, or as soon as all danger of frost is past.

Use 1200 to 1500 pounds per acre of a complete fertilizer, such as 10-10-10. Plow or disk down 500 pounds per acre before transplanting or band at transplanting. Apply the rest in at least two side-dressings. If the weather stays dry after sidedressing, irrigate.

Spray with tribasic copper sulfate (41/2 pounds per acre per application) or Bordeaux mixture (6 pounds copper sulfate-6 pounds lime per acre per application). Start about June 15 and continue at 10-day intervals (oftener if wet) until early September. DDT, 3 pounds per acre per application, can be added to these sprays for corn borer control. starting about July 1 and ending in early September.

Dr. John W. Heuberger, chairman of department of plant pathology at



Bacterial spot of pepper

University of Delaware, Newark, reports a three-pronged research attack is being conducted at Delaware Agricultural Experiment Station, on the problem of pepper production, namely:

Effect of the amount of fertilizer on the incidence and severity of bacterial spot disease.

Use of DDT for control of corn borer. It is becoming apparent that corn borer can be controlled economically

Relation of amount of fertilizer to the yield of peppers. Evidence is beginning to accumulate that 1200 to 1500 pounds per acre of a 10-10-10 fertilizer is about right.

TEST YOUR SOIL NOW!

REPORTED in this issue is the amazing discovery of the fertilizer needs of asparagus. It has been estimated that asparagus growers in the United States and Canada will save \$1 million per year in fertilizer costs by following these new recommendations.

While a soil test can't save you \$1 million, it will help you to feed your soil correctly. Too often a grower is applying too much or too little nitrogen or potassium or phosphorus to his soil. One ton of fertilizer intelligently applied can produce more than 10 tons used indiscriminately.

Whether you test your own soil with a test kit or prepare a sample to be sent to a commercial laboratory for analysis, there are certain steps to be followed to secure an accurate test:

Avoid taking sample from the fertilizer band. Ayoid unusual spots in the field such as old fencerows, roadbeds, or where lime or manure has been piled.

The soil sample should never represent more than 10 acres and should represent only one soil type and only one topographic condition.

If using a spade or knife to collect sample dig a spadeful to plow-depth

(5 to 6 inches), then throw it aside. Dig a one-half-inch slice of soil and keep it on the spade. Use a knife to cut from this slice on the spade a onehalf-inch core from top to bottom for testing.

In alkali areas sample the soil in 1-foot layers to a depth of 3 feet.

Avoid taking samples when the soil is wet. The best moisture condition for testing is when the soil is suitable for plowing.

In interpreting the test remember to consider the soil pH, color and feel of soil, and the vegetable crop to be

Soil test kits are now available that permit a grower to test his soil for pH, nitrogen, potassium, and phosphorus content. When using these kits, it is important to make certain that the glassware is kept chemically clean and that the chemical reagent has not changed in concentration.

Soil tests may mean more money jingling in your pocket because they quickly show whether or not you need lime, how fertile your soil is, what the chances are for a response to added fertilizer, and how much fertilizer to add. THE END.



After Using My Soil Test Kit I Grew a Watermelon that Weighed 114 lbs.!

"I tried for 16 years to grow a watermelon that would weigh 100 lbs. Then I got a Sudbury Soil Test Kit and started making my own soil tests. This year I had 13 melons that weighed 100 to 114 pounds and many that weighed up to 90 pounds!

I increased my income by \$30 per acre on melons alone, and saved \$10

per acre on fertilizer.

I grow watermelons, cantaloupes, cucumbers, peppers, eggplant and tomatoes. Using the Sudbury Soil Test Kit and fertilizing properly has increased my yield from 20% to 50%. I used to have tests made but they were too few and took too long to wait for returns.

I tested in early spring, midsummer and fall. Summer testing showed how much fertilizer had been taken out of the ground since spring, and -Lyman King, Superior, Nebraska how much more to add."

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Complete with everything for 300 tests. These 10-minute tests for nitrogen, phosphate, and potash save wasting fertilizer, assure highest yields. Learn where lime is needed (pH) and how much—how to make acid soil sweet, or alkaline soil acid. County agents, vo-ag teachers, ag colleges, extension workers, farmers, market growers everywhere depend on it. Don't guess about your fertilizer needs—test your soil. Lifetime welded steel chest with handle. Weighs only 12½ lbs. Easy instructions show needs of 225 crops. Only \$29.95.

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You can take the Kit right out in the field and test as you go. No samples to mail-no waiting for reports—you get the answers right away. Test as many places as you want, as often as you want. You can fertilize every plot for maximum yield and adjust the soil pH for

the crop you intend to grow. Your increased yields will repay you many times.



You can find out right now how much fertilizer last year's crops used up from the soil—how much and what year's crops used up from the soil—how much and what kinds you need for bigger yields and fancy quality. Find out what's wrong where the yield wasn't good. You can't afford to guess—the wrong fertilizer wastes money. May do more harm than good. The right fertilizer means more money in the bank! Save money by knowing just how to get the most out of every dollar you spend for fertilizer.

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H. A. of Minnesota. "Likes the Kit in making more dollars per acre." in making more dollars per acre. because it's handy to use right in T.B. of Kansas. "Got the best looking the field to see why a crop did not do good. Figure I had about 39% Subury Kit will make me over \$1500. It is the best investment I ever made."

It is the best investment I ever made."

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Serve Your Customers by Carrying This Es-sential Aid to Better Farming Write for full dealer information.



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Early Harvest. For the earliest crop developing bulbs about 85 days from seeding. Medium size deep globe. Not for storage.

Abundance, 103 days, Large light yellow, deep globe, Heavy yielding, Canbe stored to early winter.

Elite, 105 days, Medium size firm fleshed, Excellent yielding long storage variety.

Ask for prices.

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The earliest, most uniform heading variety on the market, 10 days or more ahead of most others and range of maturity only 3 days. Short compact plants with central heads, 6 to 8 in. in diameter. Developed and thoroughly tested by the Michigan Experiment Sta. ½ 0z. 75c, Oz. \$1.250.



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Summer, 1961!

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These plans sell for \$2.00 a set . . . an inexpensive start towards increasing summer profits.

AMERICAN VEGETABLE GROWER

Willoughby, Ohio

As It Looks To Me

By JOHN CAREW

Michigan State University, East Lansing

ONE night 15 years ago in Burma I played poker with a group of foreign servicemen. It was a quiet affair; we couldn't speak each others

language. But the cards spoke for themselves. I lost a week's pay. In the international game of poker, skill and imagination are not the sole possessions of those who speak English or live in the United States.



So it is with plant scientists. Read the professional journals from Europe and Asia or visit their farms and universities and you meet ample evidence of their ability. The Rus-

sians are no exception.

Soviet scientists have developed a new system for determining when plants should be watered. Instead of measuring soil moisture they measure cell-sap concentration, Lab tests with tomatoes showed that growth and yields were best in soil kept at a constant soil moisture content of 60 to 70% of field capacity.

Plants growing in soil with this moisture content had a certain cell-sap concentration varying with time of day; 8 to 9% at 10 a.m. as measured by a portable refractometer. At a higher soil moisture the cell-sap concentration was lower; with insufficient moisture it was higher,

This refractometer method for timing irrigation appears rapid, inexpensive, and accurate. Optimum cell-sap concentrations will vary with crops. With further work, however, the Russians expect to use the

system on a large scale.

In another Russian institute, as reported in the English magazine *The Grower*, gamma ray treatment of vegetable seeds hastened maturity and increased yields. Cobalt and caesium were used to irradiate peas, cucumbers, radishes, tomatoes, cabbage, and carrots 30 to 60 days before sowing. Cucumber yields were boosted 15 to 20% while carrots had a higher carotene content.

Radio-controlled tractors have been used to plow land automatically. They have a sensing or copying device enabling them to follow the line of a previously plowed furrow. Some have transistor radio equipment so the driver of one tractor has control over the operation of a robot tractor working ahead of him.

Automatic tractor control is being tested in Russian vineyards for between-the-row cultivation. Wire trellises supporting the vines are wired with a weak alternating current. The magnetic field created is picked up by the tractor control system guiding the machine down the rows and turning it at the ends. Speed can be regulated by varying the current frequency.

A recent trip to the Leamington, Ontario, area was eye-opening. This is a "boom" horticultural area with nearly 175 acres under glass and many acres of young peaches, staked tomatoes, sweet corn, and processing crops grown by unusually keen

growers.

These men, too, show plenty of skill and imagination. John Reynold's "do-it-yourself," portable, collapsible, plastic greenhouses and cold frames are ingenious. Sold as Porta-green, they make early forcing of many vegetables less expensive and less tedious.

The automatic watering system in the Colasanti tomato greenhouses is clever. Thin black plastic hose approximately 1½ inches in diameter with holes punched at 4-inch intervals along both sides was laid between each double row of tomatoes. A simple twist of the hand and the entire house was watered uniformly.

The old European system of growing plants in soil pots or soil blocks seems to be gaining favor with many growers. Abram Barg of Leamington has an electrical soil block forming machine capable of making 2000 3-inch pots per hour. He carries his machine from farm to farm making blocks from growers' soil on a custom basis.

Ross Bruner has used these blocks for 12 years and points out the advantages in initial cost (\$3 per 1000), saving of labor (eliminates storage and container filling costs), and controlling growth by regulating soil

moisture more easily.

Art Van Wingerden's Kube-Pak operation in Allentown, N. J., is still another tribute to the ingenuity of vegetable growers. A recent immigrant from Holland, Van Wingerden has developed a remarkable bedding plant business based on the use of soil blocks and extremely low-cost

FIGURE THE REAL COST OF YOUR INSECTICIDES

It's easy to pay too much—or too little! For top performance at reasonable cost per acre, use malathion. See how you save.

Somewhere between risky pennypinching and needless expense is the insecticide program that *does* the job at reasonable cost. You can't use cheap but ineffective insecticides. But you don't have to use high-cost insecticides, either. Here's why.

Malathion keeps costs low

The real measure of cost is cost per acre. This tells you how much you're actually paying to do the job, not simply how much per pound or pint the insecticide costs. This chart shows how malathion compares with a typical high-cost insecticide. Compare for yourself. Substitute figures from your area, for both malathion and other insecticides.

Gives wide-range control

Malathion fills the other requirement of *true* economy: consistent results! Malathion takes the place of special-purpose insecticides. It controls most important pests, including aphids, thrips, loopers, and strains of insects resistant to chlorinated insecticides.

Reduces drift-residue problems

Malathion has high residue tolerances on most crops, including those often subject to drift-residue exposure. Malathion does not leave persistent residues. It can be used as close as 72 hours from harvest of most vegetables; up to 24 hours in several cases. Write for Grower's Guide. American Cyanamid Company, Agricultural Division, New York 20, N. Y.

	Malathion	Typical, high-cost insecticide
1. Cost/gallon	\$11.00	\$13.00
2. Lbs. of active ingredient/gallon	5 fbs.	2 lbs.
3. Cost per lb. of active ingredient	\$ 2.20	\$ 7.50
4. Rate/acre	Actual ingredient: 1 lb. formulated insecticide: 1½ pts.	Actual ingredient: ½ lb formulated insecticide: 2 pts.
5. Cost/acre	\$ 2.20	\$ 3.75

Note (in line 2) that a gallon of malathion insecticide contains over twice as much active ingredient as the typical, high-cost insecticide. Now look at lines 3 and 4. Although you use more malathion per acre (line 4), the cost per lb. of active ingredient is well below that of the high-cost material. Result: malathion's cost per acre is lower (line 5).

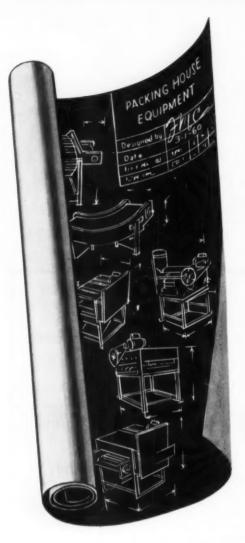




You don't need a respirator when you use malathion.

The label instructions on Cyanamid products, and on products containing Cyanamid ingredients, are the result of years of research and have been accepted by Federal and/or State Governments. Always read the labels and carefully follow their directions for use.





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plastic houses. (See Feb., 1961 AMERICAN VEGETABLE GROWER, pg.

More than 3 million greenhouse tomato plants were grown in the Netherlands on grafted rootstocks in 1960. This practice is an attempt to avoid the costs and problems of soil sterilization. Yields have been 50 to 150% above those from non-grafted plants. Rootstocks resistant to verticillium and fusarium wilts and nematodes are now available, according to the Bruinsma Hybrid Seed Company of Naaldwijk, The Netherlands.

American growers and scientists find international contacts increasingly profitable. For example, many "vacationing" research workers will attend the annual meeting of the Caribbean region of the American Society for Horticultural Science in Miami, Fla., March 19-25. Secretary Dr. E. H. Casseres, of Mexico City describes a combination of tours and scientific meetings that

will appeal to many.

Shorts: In April and May, try putting an automatic fan in your greenhouse for ventilating. Set the fan to blow the air out and have it thermostatically controlled. You won't have to worry about coming in from the field to open or close vents. The time you save will pay for the fan, and the quality of the plants you grow will be better. Get a fan large enough to change the air every minute or two. THE END.

NAMES IN THE NEWS

NEW heads of departments of horticulture are Dr. Taze L. Senn at Clemson (S.C.) College and Dr. Robert P. Ealy at Kansas State University, Manhattan. Dr. Alfred M. Boyce is now dean of University of California's College of Agriculture, Riverside.

New Mexico State University has named Dr. Joe N. Corgan assistant professor of horticulture. Earl R. Franklin, USDA economist, is the new extension marketing specialist in vegetables and fruits at Washington State University, Pullman

Florida Fruit & Vegetable Association recently honored Dr. Frank S. Jamison, head of

department of vege-Jomison

Jomison

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Jomison

Gainesville, and Dr.

Philip J. Westgate,
horticulturist at Central Flor-



Station, Experiment Sanford, for outstanding research work.



David G. Cuthbertson has been elected executive vicepresident of Ferry-Morse Seed Co. Upon his retirement as President of Bridgeport

Cuthbertsen (Conn.) Market Association, Lee Aldo, sales representative for Asgrow Seed Company, was presented with a watch. Asgrow Seed Company has appointed LeRoy Barker as manager of North Central State Breeding Station.

MARKETS...

TRENDS AND FORECASTS

Special Report

AMERICAN VEGETABLE GROWER, MARCH, 1961

UNION PRESSURE FELT IN CALIFORNIA LETTUCE FIELDS. The tactics used on fruit farms last summer are being employed in the Imperial Valley this winter. Rumor is they may strike for \$1.25 an hour minimum wage.

FOOD CONSUMPTION AVERAGED 1488 POUNDS PER PERSON IN 1960. According to the USDA fruits and vegetables including potatoes led the groups of foods consumed. 517 pounds per person were used, with dairy products next at 414 pounds.

COST OF PACKAGING FOODS IMPORTANT TO THE CONSUMER. USDA reports that about \$2 of every \$20 spent for groceries goes for packaging. Sometimes the package may cost as much as the food itself.

MARKETING COSTS ON FOODS PRODUCTS CONTINUE TO RISE. These costs rose about 1% in 1960 and now take 60 cents of each dollar consumers spend for food. Some of this added cost pays for services such as prepackaging and processing which consumers are demanding. Much of the increased cost of food is not going to the farmer, contrary to what so many consumers believe.

GOOD MANAGEMENT BECOMING MORE IMPORTANT IN VEGETABLE GROWING. As our farms become larger, require more capital and employ higher levels of technology, the management ability of the grower must also increase. If it does not keep page, efficiency on the farm will decrease and income will be squeezed.

ONION MARKET MUCH IMPROVED. Export demand plus a poor Texas crop due to bad weather has firmed the market for storage onions. Growers should not regard this as a signal for more production next year. Rather a cut is needed to bring production in line with demand.

"HOT" SPRING POTATO MARKET UNLIKELY. Stocks on hand and progress of southern plantings indicate an "average" level for prices. Late-state areas, after a very successful season, are getting "bullish" about acreage intentions. Best advice—keep production in line with demand.

MINIMUM WAGE LEGISLATION WILL AFFECT AGRICULTURE EVEN IF IT DOES NOT COVER FARM WORKERS. A higher minimum wage to labor in retail trades will raise farm costs through the goods and other services the farmer buys to run his business.

WESTERN VEGETABLE GROWERS EYE SUGAR BEETS AS ALTERNATIVE CROP. Severe competition in lettuce and melons has some western producers looking for another crop. These areas are seeking increases in sugar beet quotas, encouraged by the Cuban situation.

WHY DO GROWERS ADOPT NEW FARMING PRACTICES? A recent Wisconsin study indicates the following as reasons: 1) more profit, 2) ease and convenience, 3) improving quality, 4) keeping up with other farmers, and 5) better relations with buyers of their products.

FRESH POTATOES PREFERRED TO PROCESSED? A recent study conducted in New York City indicated that consumers used fresh potatoes compared to processed four to one. In contrast to this is the increasing sales pressure of processors to entice the housewife to try their processed products.

AUTOMATION OF FARM JOBS IN NEW JERSEY. A recent report indicates more than 2500 farm workers were replaced last year by machines for harvesting potatoes, cranberries, beans, and blueberries. Affected most are migrant laborers.

PRODUCTION POTENTIAL OF U.S. AGRICULTURE COULD DOUBLE OUR OUTPUT. USDA estimates that if all farmers farmed as well as the top 25%, one farmer could supply enough for 45 people. This is double our present rate.

STATE NEWS

FLORIDA

It Just Ain't Fair!

ROWERS in the Sunshine state GROWERS in the Same an appropriate color-as they watch shipments of Cuban tomatoes, cucumbers, peppers, etc., entering U. S. ports un-

impeded.

Despite the fact that diplomatic relations between the two countries have been severed, there has been no embargo placed on Cuban shipments. Not only are tomatoes, cucumbers, and peppers from Castro-land being received in U. S. ports, but they are coming in under a preferential duty agreement.

For example, the duty on Cuban cucumbers is 1 cent per pound, compared to 2.2 cents per pound on those shipped in from other countries. Cuba pays 1.2 cents duty per pound on tomatoes while other countries pay 1.5

Bitter protests are being lodged by Florida growers hurt by the stiff competition. They point out that the increased amount of winter crops coming in from Cuba during the current peak harvest season are flooding the U. S. markets. In Dade County alone, 15,000 acres of tomatoes will be partly lost to growers because of Cuban competition.

"As long as we let this Cuban produce in here, we are helping Castro and hurting ourselves," Jefferson Davis, a South Dade grower pointed out. And Joffre David, secretary-treasurer of Florida Fruit and Vegetable Association declared that "Cuba can break our growers in one year.'

Appeals for an embargo or at least repeal of the preferential duty agreement are being made to President Kennedy by various grower groups, including FFVA and Vegetable Growers Association of America.

Maybe they didn't use these exact words but the thought was "It just ain't fair, Jack!"

GEORGIA

Sweets Stage Comeback

SWEETPOTATOES are staging a comeback in Grady County. E. L. Chastain, chairman of Grady County Marketing Association, reports that enough acreage has been pledged to justify a modern curing and marketing plant in Cairo this

The sweetpotato industry was almost wiped out of this section of the state several years ago by a destructive infestation of sweetpotato weevils. Following rigid quarantine the weevil has almost been eradi-

cated from the area.

WEST VIRGINIA

Wins Research Award

DR. M. E. GALLEGLY, professor of plant pathology at West Virginia University, Morgantown, was presented the AAAS-Campbell



Admiring the AAAS-Campbell Medallion are (left to right) Dr. M. E. Gallegly, recipient of the award; Dr. Chauncey D. Leake, Ohio State Uni-versity, president of AAAS; Dr. S. G. Younkin, director of agricultural research, Campbell Soup Campany; and Dr. Francis C. Stark, professor of vegetable crops, University of Maryland.

Award for Vegetable Research at the annual meeting of American Association for the Advancement of Science held recently in Washington, D. C.

The bronze medallion, which carried with it a \$1500 cash award, was given to Dr. Gallegly for his work on the late blight of tomatoes and the relationship of this aspect of the disease to that found in potatoes and in the wild relatives of these two foods. Established by Campbell Soup Company, the award is granted for "an outstanding single research contribution, of either fundamental or practical significance, relative to the production of vegetables . . . for processing purposes.

When Dr. Gallegly began his work on late blight, resistance to the tomato disease was unknown. In screening approximately 1000 plant introduction tomato accessions, resistance was found in a number of small-fruited lines which have been used in a breeding program.

TEXAS

First in Nation

"WE can't do much as individuals but by planning and working together as a team, we can give leadership to programs and activities needed to make our part of the state's great agricultural in-dustry more efficient and our efforts more profitable."

In his first address before the newly formed Texas Vegetable Growers Council, president Henry



THE HAPPY HOOSIERS

Not since Booth Tarkington has a group of Hoosiers looked happier than the nofficers of Indiana Vegetable Growers Association. They are (seated, left to rig K. M. Brink, Purdue University, secretary-treasurer; O. Kelth Owen, Jr., Terre Hoppersiton; Edwin Ristow. Indianapolis, vice-president; cstanding, left to right) Alb Ekinga, Dyor: Truman Minor, Evansville; Ed Hohn, Indianapolis; Paul Aufderheide, dianapolis; Joe Viack, Vincennes; and Joe Bernacchi, LaPorte, directors. They we elected at IVGA's annual convention held at Purdue University.

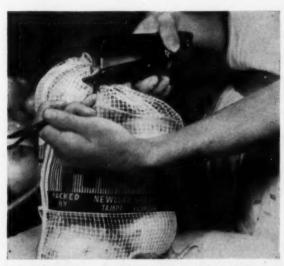
HERE'S HOW BOSTITCH STAPLING CUTS FOOD PACKING COSTS



Potatoes – twisted neck of filled bag is inserted in clincher of Bostitch machine. Staple circles neck of bag, closes it without piercing material. Benefit: 40% faster than former method.



Clams – diced clams are placed in five- or ten-pound poly bags rather than tin cans. Benefit: This method doubled packing speed, lightened shipping weight.



Grapefruit – hand-operated Bostitch stapler closes 100 five-pound mesh bags an hour. Benefit: twice as fast as hand tying in applications where automatic operation is not justified.



Oranges – packed in two-piece, half-slotted containers. Benefit: Corrugated cartons assembled on Bostitch stitcher cost less than crates and lighter shipping weight cuts transportation costs.

To get savings like these and fresher products to the market, see your Bostitch Economy Man—one of 350 who work out of 123 U. S. and Canadian cities—he's listed under Bostitch in your phone book. Call him soon.

Fasten it better and faster with



423 BRIGGS DRIVE, EAST GREENWICH, RHODE ISLAND



These men will head the newly formed Texas Vegetable Growers Council, first of its kind in the nation. They are (bottom, left to right) Henry Van De Walle, San Antonio, president; Carl Schuster, San Juan, vice-president; Marcus Dingler, Pecos, secretary treasurer; (top. left to right) Raymond Higginbotham, Hereford; Ben Burch, Hempstead; Herbert Partridge, Munday; and Clovis Poteet, Olton, directors.

Van De Walle, San Antonio, clearly expressed the purpose of this statewide vegetable group, first of its kind in the nation.

Formed in January, the council will work to promote production, consumption, distribution, and continued improvement of Texas vegetables. And it expects to carry out this objective through 10 strong and active area councils plus the state-

wide group.

The 10 area councils will represent the Lower Rio Grande Valley, Winter Garden and Coastal Bend, South Central, Southeast, Central East, Northeast, Trans-Pecos, Wichita Valley, South Plains, and Top-O-Texas (upper Panhandle). Each area is represented on the state council by one director except the Lower Rio Grande Valley area which has two, making a total of 11 directors for the state group.

Membership will be limited to persons whose major source of income is regularly derived from vegetables and crops produced on land actually owned and operated or on which the candidate for membership is a bona fide tenant. Growers who join before April 10 will become charter members. Plans are now underway in each of the areas to build membership and perfect the area councils and complete the slate of state direc-

The organization resulted from a series of planning and educational meetings covering a period of more than two years. Dr. Clyde Singletary, extension horticulturist, Texas A. & M. College, played a major role in bringing about formation of the

"I believe the vegetable growers of Texas have made a real step forward and most are optimistic over the prospects which they feel the new organization can help bring

about," Henry Van De Walle said in his address to the council. "At least we have an organization which can study the problems of the growers objectively and recommend solutions. The time has come when growers must face their problems as a group and work the same way.

Growers and shippers in South Texas have approved a federal marketing order on onions. The program will be administered by a 17-member committee composed of 10 growers and seven shippers. It will recommend regulation of onion shipments by grade, size, quality, pack, and container. These regulations would apply to any or all varieties.

OHIO

The Grower Image

GTHE grower image must be changed because we are now a minority group," Robert Frederick, executive secretary of Vegetable Growers Association of America, warned growers attending the annual convention of Ohio Vegetable and Potato Growers Association, held recently in Cleveland.

Stressing agriculture's need for better public relations, Frederick cited some of the legislation affecting growers that will be introduced in the 87th congress:

A minimum wage for agricultural workers with provisional increases over a three-year period. It would apply to every grower who used 2244 hired hand days the previous season. This does not necessarily mean a full day's work-one hour's work in a single day would mean a hired hand day under the present interpretation.

New rulings on child labor. No child under 14 could be employed on a farm (own family is excluded). Children 14 and 15 years old could be employed for handwork if permission is obtained from Secretary of Labor. Those 16 and 17 years old could not be used on hazardous jobs.

Bonding and registration of crew

leaders.

Frederick warned growers that they must make adjustments in their production or the government would do it for them. He also pointed out that failure of the different groups and organizations in agriculture to agree on a unified position on such measures as Public Law 78 governing employment of Mexican Nationals weakens agriculture's influence with legislators.

About 300 growers, one of the largest groups ever to attend OPV-GA's annual convention, heard Frederick's address and his repeated plea for more effective public relations.

Meeting in conjunction with OPVGA were members of Cleveland Greenhouse Vegetable Growers Asso-

Tom Wolfe, Elyria, was re-elected president and Richard Pretzer, Cleve-



THEY'LL SERVE OPVGA IN 1961 This group of Buckeyes will hood Ohie Vegetable and Potato Growers Association in 1961. They are (bottom, left to right) Carroll Bartter, Columbia Station, vice-president, potato section; Kenneth Zellers, Hartville, first vice-president; Vernon Kraushaar, Cleveland, president; Edward Moeller, Cliceinanti, vice-president, greenhouse section; Frank Buurma, Willard, vice-president, muck crops section; (top, left to right) Leo V. Goffin, Columbus, treasurer; J. C. Basquin, Big Prairie, director; E. C. Williamyer, Columbus, secretary; A. W. Gerhart, North Ridgeville, director; William M. Brooks, Columbus, associate secretary; Leonard Bettinger, Swanton, director. Not shown: James Schmidt, Swanton, vice-president, truck crops section.

Onion Maggot Injury

TRITHION insecticide can be used to control maggots in dry or green onions, either in muck or mineral soils. Application is simple. One of the most effective ways is to apply the insecticide in the furrow when you plant your seed, sets or transplants.

Even onion maggots which have developed a resistance to chlorinated hydrocarbons are easily controlled by TRITHION.

TRITHION is available as a 10% granular material. Follow application rates and other details on the label.

For further information, see your dealer or write to Stauffer Chemical Company, Agricultural Chemicals Division, 380 Madison Avenue, New York 17, New York.



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land, vice-president, Forrest Weiser, Cleveland, was unanimously chosen to replace C. W. Sanderson who resigned as secretary after eight years.

NEW YORK

A Warning!

LABOR unions are spending time and money to picture themselves as saviors of the poor, downtrodden working man who has been mistreated and abused by the grasping farmer."

This was the warning growers attending the first Empire State Farm Show received from Torry Lyons, Davis, Calif., who observed firsthand the organizing tactics of AFL-CIO's Agricultural Workers Organizing Committee. Lyons said that the unions are building up antagonistic public opinion and discrediting the grower.

The Empire State Farm Show, held at Syracuse, was sponsored by 13 farm organizations, including New York Potato Growers Co-operative Inc., and New York State Vegetable Growers Association, Inc. Notably absent from the list of sponsors were New York State Horticultural Society and Empire State Potato Club. Failure to reach argument on lending support to the farm show caused a split between Empire State Potato Club and New York State Vegetable Growers Association. As a result NYSVGA formed its own potato division. The vegetable group held their annual meeting in conjunction with the big farm show.

Of particular interest to vegetable

STEMPFLE LEAVES NYCCGC



STEMPFLE LEAVES NYCCGC

W. S. Stempfle, executive secretary of New York Canning Crop Growers Co-operative, has resigned to join Stanford Seed Company, Buffalo, N. Y. As a member of the Stanford staff, he will concentrate on sales of the company's branded seed corn in the Northeast. Stempfle joined the 1500-member of the Stanford and marketing of processing vegetables in western New York in 1955.

Michael Muscarella, Batavia, who for the past two years hus been associated with NYCCGC as a fieldman, will succeed Stempfle as executive secretary.

growers were the talks given by Dr. Ora Smith, Cornell University, Ithaca, and Dr. John Aitkin, New York Agricultural Experiment Station, Geneva.

While calling for more attention to be given to processing potatoes, Dr. Smith cited the following needs of the potato industry: Better organization among growers; greater use of the specific gravity test to identify bakers and boilers; an increased use of sprout inhibitors; and more attention to the possibility of



A CITATION THEY LIKE!

A CITATION THEY LIKE!
You can tell by the smiles these aren't traffic citations but plaudits for two members of New Jersey's vegetable industry. Vegetable Growers' Association of New Jersey, Inc., honored Willard Kille, Swedesbore, for his work with scientists in breeding and testing tomate strains, and Karl E. Baird, sales representative, Chamberlin and Barclay, Inc., Cranbury, for his assistance to members of VGANJ. Left to right are Wallace A. Mitcheltree, extension specialist in soils, Rutgers University; Kille: Baird; William Plenge, Asbury, YGANJ president.

contracts between growers and processors.

Dr. Aitkin pointed out that the chief competition of the snap bean grower in the Empire state comes from Oregon and Washington. He noted that while Oregon growers are a long distance from market, they are selling considerable quantities of canned snap beans in the Northeast.

At the annual meeting of New York State Vegetable Growers Association, Inc., Philip Luke, Fulton, was elected president. Other officers elected were: Stanley Weicek, Goshen, vice-president, muck crops division; Stuart Allen, Waterville, vice-president, processing vegetables division: Harold Henry, Eden, vicepresident, general vegetable crops division: Howard Mills, Baldwinsville, vice-president, greenhouse crops division: Severyn Hasbrouck, Hurlev, vice-president, sweet corn division; Fred Eaton, Hubbardsville, vice-president of newly organized potato division; Fred Howe, Hubbardsville, secretary; and John Youngs, Glen Head, and Elmer Agle, Eden, directors.

Lettuce growers in Orange and Oswego counties may not be shouting loudly but they are voicing vigorous objection to the practice of loading cars with lettuce in California or Arizona and starting them East before a buyer is located.

Too often the car arrives at an eastern terminal without a home, and eventually is sold by the railroad in order to get at least part payment for transportation charges. The western lettuce grower gets no profit, to say nothing of losing his production costs, and the grower in any northeastern lettuce-growing area also faces a loss.

When such lettuce arrives on the

market, it is sold at ruinous prices, and if the quality has deteriorated it discourages the housewife from buying more lettuce.

The big question now facing growers in the Northeast—what can be done to improve the situation?

CALIFORNIA

New Look at Land Taxes

A STATE constitutional amendment has been proposed to free California farmlands from the inflationary property taxation trend caused by rapid urban expansion.

The amendment would require county assessors to establish assessments for farmland on the basis of farm values—not residential, commercial, or industrial value—for as long as the land was used for farm purposes.

To prevent speculation, the property owner would be required to sign a five-year contract with the assessor agreeing to pay back taxes if the land use was changed from agricultural to industrial, residential, or commercial during the contract period.

Legislative reaction to the proposed amendment is as yet unknown. But if the amendment gets legislative and popular approval, it could in the longrange development of agriculture provide a tool for salvage of the best productive land from urban encroachment without drastic zoning measures.

CALENDAR OF COMING MEETINGS AND EXHIBITS

Mar. 1—Vegetable Pest Control Equipment Clinic, Knights of Columbus Hall, Utica, Mich. — Lane Rushmore, County Extension Agent, Mount Clemens, Mich.

Mar. 5-8—Watermelon Growers and Distributors Association annual meeting, Seville Hotel, Miami, Fla.—J. J. Parish, Sec'y-Treas., Adel, Ga.

Mar. 12-15—Potato Growers Association of California and Arizona, Bakersfield Inn, Bakersfield, Calif.—Francis P. Pusateri, Exec. Mgr., P. O. Box 83, Bakersfield, Calif.

Mar. 20-23—National Conference on Handling Perishable Agricultural Commodities, Purdue University, Lafayette, Ind.

Mar. 27—Michigan Vegetable Growers Supply and Equipment Show, Detroit Eastern Municipal Market, Detroit.—Edgar C. Kidd, County Agent, Box 552, Wayne.

Apr. 9-12—National Association of Produce Market Managers convention, Town 'N' Country and Holiday Lodge motels, Myrtle Beach, S.C.— Jules S. Cherniak, Sec'y, Div. of Markets, New York State Department of Agriculture & Markets, Albany, N.Y.

May 4—Greenhouse Vegetable Day, Ohio Agricultural Experiment Station, Wooster.

June 19-24—Pacific Division American Association for the Advancement of Science, University of California, Davis.

Sept. 27-29—Florida Fruit & Vegetable Association convention, Hotel Americana, Bal Harbour.—J. Abney Cox, General Convention Chairman, Princeton.

Oct, 1-4—Produce Packaging Convention and Exposition, Chase-Park Plaza Hotels, St. Louis, Mo.—Robert L. Carey, Exec.-Sec'y, Produce Packaging Association, P. O. Box 29, Newark, Del.

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6095- 225ETF4	45,000	Two-Side	60 GPM at 200 PSI	400 gal.	250	100	
6020- F29TR4**	30,000	One-Side	20 GPM at 400 PSI	400 gal.	100	25	
6020- F24TR2**	10,000	Two-Side	20 GPM at 400 PSI	200 gal.	50	9	

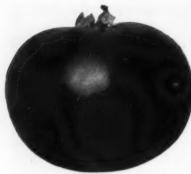
^{*}Available in wheel and skid models.

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PACKAGING & MARKETING

A Different Shape

THERE'S a different shape to bean shipments from Florida's Palm Beach County. No longer are beans arriving in hampers, but in wirebound crates. Reason for the changeover is that the rectangularshaped crates pack easier and can be closed automatically. About 384,-000 bushels of beans are shipped from this area each fall.

A Giant Step Forward

PHEY may not be wearing seven-I league boots but two grower organizations working together have taken a giant step into middle mar-

Four processing plants of two western New York firms—Curtice Brothers and Burns-Alton-have been purchased by Grange League Federation (GLF), a large Northeast grower co-operative with headquarters in Ithaca, N. Y., and Pro-Fac, Inc., a newly organized grower co-operative with about 500 members. The canneries have been merged into a single firm, Curtice-Burns, Inc.

In the joint venture, GLF holds 51% of the stock in both Curtice-Burns, Inc., and Pro-Fac, Inc. (The stock held by GLF in the latter is non-voting stock.) Grower members of Pro-Fac not only agreed to raise the remaining 49% of the purchase price but also agreed to commit their crops to Pro-Fac for three years, with penalties of as much as 25% of the selling price if they deliberately violate quality, quantity, or variety commitments.

Management of both Curtice Brothers and Burns-Alton have been retained by the new company. The two firms were highly successful processing concerns with top grade management, excellent sales and profit records, and high product acceptance. They were recognized as among the most efficient processing companies in New York state.

Curtice-Burns, Inc., will process sweet corn, beans, peas, tomatoes, beets, potatoes, apples, and cherries. According to agreement, at least 50% of the profits of the firm over the next 10 years will be returned to Pro-Fac for member-growers.

E. H. Fallon, GLF's general manager, recently pointed out that the program has many built-in safeguards for both the growers and GLF. It assures grower control and ownership, since growers themselves

own their co-operative and GLF holds controlling interest in the processing co-operative.

In this project, GLF hopes it has pioneered development of a pattern that can be extended to virtually every commodity produced in the Northeast. Time will tell how successful this venture into middle marketing will be but one thing is certain-the grower members of Pro-Fac now have more control over the marketing of their crops. By bringing the grower closer to the retailer, returns to the grower should be substantially increased.

Our Foreign Markets

"THE United States vegetable in-dustry needs more markets like

A. Clinton Cook, agricultural economist, fruit and vegetable division of Foreign Agricultural Service, had good reason to make that statement. Over 75% of fresh vegetable exports from this country are sent to Canada; more than one-half of the potato exports; and about one-third of the processed vegetable

The importance of export markets to the U.S. vegetable industry cannot be overemphasized. In 1959-60 vegetable exports reached a record \$108 million. And prospects for the future seem promising. The Canadian market has been expanding at a rate of about 5% a year. This is due in part to Canada's economic and population growth and to the fact that it is not possible for them to have a year-round production of vegetables.

The European market is also expanding. To the present time European consumption of processed vegetables has been extremely low. However, as their economy improves and more wives are employed outside the home, appreciation of convenience foods has grown. Frozen vegetable exports to the United Kingdom jumped from 300,000 to 6,300,000 pounds in 1959-60.

Of equal importance to vegetable growers is the overseas activities of several of the United States' leading food processors. Campbell Soup Company has announced plans to invest \$30 million during this fiscal year, which began August 1. Campbell operates plants in Great Britain, Italy, and Australia. A plant is now under construction in Mexico.

While this will undoubtedly accelerate foreign consumption of

processed vegetables, the question is whether U. S. growers can obtain a share of this business. Our vegetable processing industry is the most effi-cient in the world, but the cost of exporting, which includes duties, ocean freight, and handling charges, adds substantially to delivered prices of processed vegetables.

The potential of the processed food field in Europe can be exemplified by the fact that through extensive advertising and trade promotion, sales of canned soup in the United Kingdom have jumped from \$42 million to \$84 million during the past five years and dehydrated soup from nothing to \$5 million. The principal participants are Heinz, Campbell, and Cross and Blackwell in the canned field; Corn Products Refining Company in the dehydrated

field. The bottleneck in the exporting of fresh and frozen vegetables is transportation. Refrigerated space is none too plentiful and freezer space is even less. Trans-Atlantic rates are high and shipping lines are reluctant to provide more space unless the trade can guarantee a minimum tonnage.

Experiments are now underway with self-contained refrigerated boxes small enough to be carried by semi-trailer. By placing the refrigerated boxes so they can be serviced en route, variouse temperatures can be maintained on most any dry cargo freighter. These boxes can be loaded at the U. S. packing plant and unloaded at the warehouse at final destination, reducing unnecessary handling.

How will our overseas markets affect the vegetable industry? Only time will tell. But growers are becoming more aware of the potentials -both good and bad.

The Dwindling Share

WHEN Mrs. Consumer buys fresh green beans, the grower receives 43 cents of each dollar she spends. But when Mrs. Consumer purchases frozen green beans, the grower's share drops to 19 cents.

As a general rule, the grower's share of our food dollar declines as the amount of processing increases. There are exceptions to this rule. The citrus grower receives 32 cents of the dollar spent for oranges, 38 cents when consumers buy canned orange juice, and 43 cents when orange juice concentrate is purchased.

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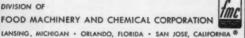
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Antress.

POTATOES

We CAN Measure Hail Damage

FOR 10 years University of Idaho horticulturists have been studying hail damage. Like weather, generally, you can't do much about a hailstorm. But by devising a few man-made storms and studying their effects, you can discover what damage hail can do. This was the objective of these studies, and some interesting things were found out about two important Idaho crops: potatoes and beans.

Hail insurance has been available for years on many crops. However, damage appraisals were, at best, little more than a rough approximation of actual damage. For this reason both underwriters and the growers themselves have not entered enthusiastically into this kind of insurance. An appraisal, based upon controlled conditions, was needed.

If you're going to study hail damage under controlled conditions you make your own hailstorm when and how you want it. In the Idaho studies, potato vines were "flogged" with a sort of "cat-o-nine-tails" device at different stages of growth and to different degrees. Rates of defoliation ranged from 25% to 100%. First "storms" occurred when the plants were from 6 to 8 inches tall. These were repeated at five other stages of growth until the plant was fairly ma-

Generally speaking, greatest loss occurs when hail comes at the fullbloom stage of potato growth. Close behind this from a loss standpoint is the period of full growth. At the other end of the scale it was found that potatoes completely defoliated at the 6- to 8-inch stage seldom dropped off more than 40% in yield, while a loss of half the foliage at this same time resulted in less than 10% reduc-



Potato plant defoliated 100% at 50% full bloom This crop would be reduced by more than 80%

tion in yield. In all cases yield is set forth in terms of U. S. No. 1 grade of potatoes.

Bean plants-Pinto and Topcrop were given about the same treatment as potatoes. There were five stages of growth at which simulated hail damage was inflicted. These ranged from the young plant with its first trifoliate leaf up until the time when all blossoms had fallen and pods had set.

Greatest losses in bean yields resulted from damage sustained at full bloom up until two weeks after full bloom with all pods set. Up until first bloom or some time thereafter bean plants can lose at least two-thirds of the leaves and still come up with 80% of a normal crop. On the other hand, if they lose as little as one-third of the foliage at full bloom, yields will drop as much as 40%.

As much as one-half the crop may be lost where beans are defoliated 66% at full bloom. In many cases you might just as well plow up the whole field if you are destined for only half a crop. Growers and insurance people know this and rates are established



Pinto been test plot shows recovery of plants which were damaged 25 days earlier. Row at left was defoliated 100%. Recovery was much greater in row at right defoliated only 66%.

accordingly. The time of the year and the value of the crop are two things to be considered before aban-

doning a damaged field.

As a result of these simulated hail studies on potatoes and beans, reported in Idaho Agricultural Experiment Station Bulletin 332, accurate formulas may be derived to form a basis for satisfactory settlement of damage claims. Hail companies throughout the country have accepted this information which is of value to them in establishing a program of crop insurance.-George W. Woodbury, University of Idaho, Moscow.

Emphasis on Quality

POTATO quality is the theme of the 1961 Potato Handbook, published annually by Potato Association of America. Featured in the current handbook are articles on production of quality potatoes for fresh market; factors affecting processing quality of potatoes; breeding potatoes for quality; and effect of storage on potato quality. Also included is a handy buyer's guide.

Copies of the 1961 Potato Handbook may be obtained for \$2 each by writing Potato Association of America, New Brunswick, N. J.

SPUDS

Albert L. Mason Albion, N.Y.

Some folks raise 'em on the upland; Some folks raise 'em on the muck. When I raise 'em in my garden, Each one costs me 'bout a buck!

Now the way I like to raise 'em Is to raise 'em on a fork!
They go darn good with the gravy,
When they're raised here in New York!

If I lived in Maine or Idaho, I'd buy their kind and eat 'em; For no matter what your home state is, It's mighty hard to beat 'em.

Yes, when I come in to dinner, And I'm hungry, tired and late, 'Long beside my meat and salad I want taters on my plate!

Compacted Soil Cuts Yield

N a two-year study of the value of minimum tillage, George Blake, University of Minnesota soil physicist, found that excess soil compaction reduces crop yields. Among crops tested, potatoes showed the sharpest drop in yields when grown on experimentally packed soil-54%.

Soil surfaces were packed with a heavily loaded truck and the plow layer with a special weighted wheel. The resulting compaction produced soils with less air space and harder penetrability, much like that which occurs from over-use of field machinery.

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Boost your profits on vegetables this year by using SEVIN insecticide to control major insect pests the effective, economical way. The new low price of SEVIN this year gives you substantial savings on a practical spray or dust program. No other insecticide gives you all the money-making benefits you get with SEVIN: long-lasting control per application, a higher degree of safety in use, insect control right up to harvest and control of insects resistant to other pesticides.

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TOMATOES

Set Younger Plants

GROWERS can increase yield as much as 7 tons an acre by setting tomato plants that are 35 to 45 days old, reports Philip Minges, professor of vegetable crops at Cornell University, Ithaca.

Tomato plant experiments in temperature and growth showed plants set out at three weeks from seeding produced yields of 35.4 tons per acre; at five weeks, 34.9 tons; at seven weeks, 28.7 tons; and at nine weeks, 27.8 tons per acre.

Recommended period for setting tomato plants is when plants are between five and six weeks old and have been grown in a greenhouse with night temperature of 60° F. or higher. Transplants should not have flowers at the time of field setting, according to Minges.

Experiments conducted showed that earlier yields are obtained by raising fewer than the normal 100 plants per flat.

At New York State Experiment Station, Geneva, they have been conducting trials on row spacing and number of plants to the acre of tomatoes grown for processing.

Specialization.

In station experiments comparisons were made of yields from plants spaced 18, 27, and 36 inches apart in rows spaced 4, 5, and 6 feet apart. A twin-row planting pattern was also tested for each spacing in comparison with normal row spacing.

In the twin-rows plants were set in pairs of rows 18 inches apart with 4, 5, and 6 feet between the twin-rows.

Yields of tomatoes suitable for canning indicated that 4500 to 5000 plants—rather than the usual 3000 plants—to the acre gave the highest net return.

The object of the twin-rows was to markedly increase the number of plants per acre, yet leave adequate aisles for picking without trampling the vine. In a dry season, the twinrow pattern proved very effective and resulted in larger net returns at each row spacing. But in seasons of abundant rainfall, the luxuriant vine growth resulted in reduced yields at the closest spacings in twin-rows.

Reducing Costs

IN Douglas Jensen's vocabulary, soil fumigation is synonymous with reduced costs. Why? Last year this tomato grower in Pasco, Wash., saved \$500 in weeding costs on only 2½ acres.



Jensen examines tomatoes he grew on previously

It used to cost Jensen as much as \$140 per half acre on the dreaded first weeding of his tomato fields—workers were forced to get down on their hands and knees to remove every weed competitor from the rows of tiny seedlings.

rows of tiny seedlings.

Last year, the total cost of weeding his 2½ acres the first time was only \$77—and the weeding was done standing up, with a hoe.

How was this big savings accomplished? By fumigating his soil. Jensen first cultivated and ridged his planting rows, then applied Vapam (Stauffer Chemical) in a band along each row, using a shank injector



Research Centers: Hollister, California . Ames, Iowa

with three blades spaced about 5 inches apart.

The ground had been kept moist for several days to make sure the weed seeds were in germinating condition. He then rolled the tops of the ridges lightly to keep the fumigant in the soil longer. After the fumigant had left the soil, tomato seed was planted.

The treated crop rows were kept relatively grass and weed free for the entire growing season, and he was able to cultivate between the rows to keep the rest of the field

Jensen believes the band application of fumigant, requiring much less material than all-over application, makes the treatment economically feasible for such crops as green peppers, as well as for tomatoes.

Keep Driveways Open

GROWERS raising tomatoes for processing should leave roadways and driveways unplanted, recommends E. C. Wittmeyer, Ohio State University extension horticulturist.

Fruits on plants growing in driveways often are damaged as the crop is harvested. Vinegar or fruit flies

YOU be the EXPERT!



A S Larry put it, the tomato seedlings were standing still. They had been transplanted to peat pots three weeks before, but growth was unusually slow. The fact that the stems and leaves were a purplish color puzzled Larry since he kept the greenhouse temperature above 60°F, and watered them carefully.

It couldn't be fertilizer burn since he had taken the soil directly from a low spot on the back of the farm and hadn't added any fertilizer. He watered them twice with a soluble nitrogen fertilizer without any visible response. What is your diagnosis?

Answer on page 59

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Bountiful Ridge Nurseries Princess Anne, Md.

lay eggs in freshly damaged fruit. Under federal law, no fruit fly eggs may be present in canned tomatoes and tomato products.

Growers in Ohio Top Ten Tomato Club will receive an adjustment in yield of 10% if they leave driveways in their fields unplanted.

A new development is the use of cross driveways that run at right angles to the row. Thus, the picker is

always working toward the driveway and doesn't have to walk over other rows, possibly damaging fruit.

New Staking Variety

VOGUE, a staking variety developed particularly for the Niagara Peninsula, has been released by Agricultural Experiment Station, Vineland, Ontario.

The new variety is two days earlier than Harkness and Earliest-of-All. It is also larger. In station tests, the average size of Vogue was 4.3 ounces compared with 3.6 ounces for Harkness, and 3.1 ounces for Earliest-of-All.

Fruits of the new variety ripen very uniformly. When very dry weather is followed by excessive rain or irrigation, some circular cracking occurs.

For Processing

POCOMOKE, a new tomato for processing, has been released by University of Maryland. The variety, formerly called Maryland 314, was developed by Dr. F. C. Stark, professor of vegetable crops.

Pocomoke has a deep red color when ripe and is quite firm. It is resistant to cracking and sunburn and is tolerant to fusarium wilt. Its small fruit size-averaging 4 to 6 ounceswould prohibit general use for fresh market

Because of the firmness of the fruit and the large percentage of fruit ready for harvest at one time, Pocomoke is believed to be adapted to mechanical harvesting.

Modified Pruning

RUIT cracking of tomatoes can be reduced as much as 60% by following a modified system of pruning, reports W. M. Brooks, horticulturist at Ohio Agricultural Experiment Station, Wooster,

Extra foliage is secured by allowing growth of axillary shoots or "suckers." One common practice is to allow suckers immediately below the first flower cluster to remain and develop into a second main stem. All subsequent suckers on both stems are removed as they develop, until the third or fourth cluster appears. The suckers developing above these clusters are allowed to grow.

Commercial growers in several areas have tried the modified system of pruning and have found it to be helpful in producing fruit with better color, less sun scald, and fewer cracks. Yields in most instances have been increased, and yields of top grade fruits more than doubled, Brooks reports.

What Growers Ask About Nematodes

Q. Does the presence of plant-parasitic nematodes always indicate the need for

A. No. Plant-parasitic nematodes, when present in low numbers, usually do not cause sufficient damage to warrant special control measures, especially on crops of low value per acre.

Q. Can plant-parasitic nematodes be introduced into new areas through plant-

ing stock, soil, or other materials?

A. Yes. A few very destructive nematodes have a limited distribution in this country, and every effort should be made avoid introducing them into areas where they have not been reported.

Q. Can nematodes be effectively controlled?

The recent development of A. Yes. nematocides (soil fumigants capable of killing nematodes) has made effective nematode control possible. Sanitation, crop rotation, fallowing, flooding, selection of planting stock, and certain other practices contribute in varying degrees to nematode control.

O. How are materials for the control of nematodes applied?

A. Nematocides are applied to the soil in various ways depending upon the

material used, the soil type, and the equipment available. The most common method is to apply the nematocide as a liquid, injecting it 6 inches below the soil surface behind cultivator shanks.

Q. What is the usual cost of soil fumigation for nematode control?

A. Depending upon the material used and the rate and method of application soil fumigation costs from \$40 to \$80 per acre. Certain materials which also control soil fungi and weeds cost as much as \$400 to \$500 per acre and are used only in special situations. Certain types of farm machinery may be converted into satisfactory applicators for nematocides at a cost of \$75 to \$125.

Q. Can nematodes be eliminated from an infested site by soil fumigation?

A. No. Although a properly applied nematocide treatment will reduce the nematode population considerably, a 100% kill is virtually impossible to achieve. During the course of the season, the few surviving nematodes, freed of competition and provided with an ample food supply, rapidly increase in number, thereby creating a potential threat to susceptible crops in succeeding years.—Alvin J. Braun and J. A. Keplinger, New York State Agricultural Experiment Station.

Answering Your OUESTIONS

Don't let your questions go unanswered. Whether large or small, send them with a four-cent stamp for early reply to Questions Editor. AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

BOON TO BEETS, BANE TO PEAS

BOON TO BEETS, BANE TO PEAS

I didn't have much luck with my peas last summer. The plants came up stunted and stayed that
way. The first leaves were yellow, and later
leaves had olive colored, watersocked spots on
them. Beets grown in the same field the previous
seasen were given heavy boron applications to
counteract blackspot. My neighbor tells me this
might have had something to do with the damage
on the peas. Could this be true?—New York.

Yes. Peas following beets which received boron applications frequently show injury. The symptoms you describe are those of boron toxicity. Avoid planting peas or beans in soils which received large amounts of boron the previous year or two.

NEEDS SEED CLEANER

Where can I get a seed cleaning machine?— Montana.

A. T. Ferrell & Co., Saginaw, Mich.

WILL TRY MISSISSIPPI 1717 ON GUAM

We're interested in the watermeion Mississippi 1717 mentioned by Stuart Simpson in his article "They Cry for Round Ones." What seedsmen have this variety, and will they ship seed out of the United States?—Suam.

Stuart Simpson is a grower and his Simpson Nursery Co., Monticello, Fla., has Mississippi 1717. He tells me they ship to a great many foreign countries and have no difficulty in meeting the requirements of

WHERE CAN I BUY SEED OF Nemagreen lima bean?—Alabama.

Some sources are: Asgrow Seed Co., 272 George St., New Haven 10, Conn.; Corneli Seed Co., 101 Chouteau Ave., St. Louis 2, Mo.; Ferry-Morse Seed Co., Mountain View, Calif.; Northrup-King & Co., 1500 Jackson St., N.E., Minneapolis 13, Minn.

PLASTIC PLANT PROTECTORS

On Page 12 of your April, 1958, issue is a photograph of some polyethylene plant bonnets. I know this was some time age, but I wender if you could tell me who makes them?—lowa. Green Thumb Metal and Plastic Corp., 2417 Nicholasville Pike, Lexington, Ky.

IOWAN WANTS TO JOIN GROWER GROUP Is there a vegetable growers group in lowa? How do I get in touch with it?—Jowa.

Yes. Write C. L. Fitch, Secretary-Treasurer, Iowa State Vegetable Growers Association, P. O. Box 421, Ames, Iowa.

TOMATOES ON HIS POTATO PLANTS?

I found small, tomato-like fruits growing on my porato plants last summer. They were green and measured about an lach in diameter. What are these "tomatoes," and are they good for anything?—Ohio.

They're potato seed balls, the true fruit of the potato. Ohio summers are usually too dry and warm for these seed balls to appear, but the relatively cool, humid weather of this past season favored their development. They're quite common farther north. Newer varieties such as Katahdin, Kennebec, and Sebago are more likely to produce these seed balls than such older strains as Irish Cobbler.

Plant breeders use the seed in making crosses and developing new varieties, but they're worthless to you as a grower. The flattened, ovate seeds you find inside the "tomatoes" will produce potato plants, but

they won't be true to variety.

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temper. Hundreds of sizes and shapes for different crops and soils. Adaptable to various types of equipment.





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Jeno Paulucci hurries from plane in which he flies 200,000 miles annually, maintaining a busy schedule of visiting customers, suppliers, farms, processing plants of his many enterprises.

Jeno and HIS MIDAS TOUCH

By GEORGE NICHOLAS

THIRTEEN years ago Jeno F. Paulucci borrowed \$2500 to raise bean sprouts in a converted Quonset hut. Now he heads Chun King Corporation, a complex of farming and food processing companies with annual sales of \$30 million.

Paulucci is one of the nation's youngest self-made millionaires, the largest producer of bean sprouts, canned pie fillings, wild rice, and canned and frozen American-Oriental foods.

Yet Paulucci, son of an immigrant Italian miner, knew little but poverty before he began growing bean sprouts at the age of 29.

He was born in 1918 in the mining town of Aurora, Minn. In 1933 the Pauluccis opened a grocery in their home. Striking out on his own, Paulucci became a salesman for a wholesale grocer.

After World War II, Paulucci heard more and more about the increasing popularity of bean sprouts and American-Oriental cuisine. Servicemen returning from the Far East had cultivated an appetite for Oriental dishes. Americans were getting an international outlook in their tastes.

Early in 1947, he became a bean sprout grower. Bean sprouts are grown from mung beans indoors in hydroponic gardens. Because the beans take five days to sprout, by planting daily there is a harvest every day. Paulucci grew them, as

he does today, in 24-inch deep aluminum trays instead of in the traditional Chinese crocks.

Tray bottoms are filled with 4 inches of beans, grown in Texas and Oklahoma. The beans are soaked, watered four times daily, and kept in controlled temperature. Treated with hormones to stunt the inedible root hair and to make them sprout faster, they grow to 4 inches and fill the trays in five days.

Paulucci sold up to 300 pounds a day within a few weeks. At first he sold only to local markets, then to Oriental-American food canners. Then he began canning bean sprouts. In less than a year the company outgrew its quarters and moved to Duluth, Minn., its present location.

The company produces 20 million pounds of bean sprouts a year. They are canned alone and with other Chinese vegetables for use in homemade Oriental-American foods, salads, and other non-Oriental dishes. And they are the chief ingredient in Paulucci's canned and frozen Chun King foods.

In 1950 Paulucci organized Wilderness Valley Farms to grow some of the vegetables he was buying. He has since purchased over 7000 acres of tax-forfeited land north of Duluth and turned the stubborn wasteland in the shadow of the iron dumps into a rich farmland producing celery, romaine, escarole, sweet peas, broccoli, cauliflower, Chinese cabbage, cabbage, lettuce, radishes, carrots, onions, and potatoes.

Experimenting continually with improved seed and plant and seed strains, fertilizing, insect and disease control by plane and ground spraying, frost control, and soil drainage, he produced 100,000 pounds of fine quality Pascal celery per acre last year. Paulucci has grown Chinese cabbage averaging 8 to 10 pounds each, celery of 10 to 12 pounds per stalk, giant radishes, and onions.

At harvesttime (September 1 for celery), crews work from dawn to dusk, occasionally by floodlight, to



Aerial view of celery harvest on 7000-acre Wilderness Valley Farms, once wasteland in shadow of Duluth's iron dumps. Paulucci has grown celery averaging 10 to 12 pounds per stalk.

beat the frost. Crops are shipped on Paulucci's own fleet of semi-trailers to markets and to the company's

three processing plants.

Called the Orient Express to highlight the company's leadership in the Oriental-American food market. the fleet includes 35 semi-trailers (15 owned and 20 leased). Some trailers are refrigerated; other shipments are made between layers of ice.

It hurt Paulucci to see the trucks returning empty from market. He organized another affiliate, Northland-CK Foods, which produces pie fillings from fruit the trucks bring back. In typical Paulucci fashion, the Wilderness pie fillings became the nation's leading brand with 35% of the market.

Apples come from Washington, cherries from Michigan and Wisconsin, wild blueberries from Maine and Quebec. Recently Paulucci began growing his own fruits for the pie fillings and desserts.

For the last two years the company has been researching to develop a "domesticated" wild blueberry. This summer it entered into an agreement with Indians in nearby reservations to put abandoned wild blueberry tracts back into productive use.

At Zim, Minn., Paulucci organized the Minnesota Mushroom Growers Association. There mushrooms are grown from spawn in darkness in specially-constructed houses in a controlled mixture of peat soil with fertilizer. Four crops totaling hundreds of thousands of pounds a year are produced, supplying Paulucci with mushrooms for his Oriental-American foods, a new Italian foods line and sale to processors.

Paulucci is still very much the vegetable grower. He visits the farms, an hour's drive from Duluth headquarters, regularly. He is a stickler for quality. Mechanical harvesting for celery was abandoned because it bruised the stalks. At the plant he uses fresh eggs instead of powdered for Chun King Chinese noodles, the nation's leading brand. He makes personal taste tests at least once a day.

To keep in touch with his suppliers and customers he flies 200,000 miles a year in the company plane.

At 41, Jeno Paulucci has skyrocketed to leadership in most ventures he has taken up. He is ample proof that opportunity exists for the enterprising grower and marketer.

Working drawings for an attractive, easy-to-build roadside stand are available for \$2.00 from AMERICAN VEGETABLE GROWER, Wil-

BURPEE'S FORDHOOK HYBRID WATERMELON

True first generation (F1) hybrid. Family size melon with delicious, bright red flesh and moderate number of small seeds. Nearly round. Produces an extremely early crop for local market.



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Burpee Hybrid Cantaloupe-true F1 hybrid. Flesh is deep orange, thick, firm, juicy, sweet and delicious. Average 4-41/2 lbs., often much more. A premium market variety with good early yields.

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ASPARAGUS

(Continued from page 9)

phosphorus required for spear development was evidently supplied from storage reserves in the fleshy roots. In contrast, it has been found by similar tests with radioactive phosphorus that corn, even on fairly fertile soils, obtains as much as 30% of its phosphorus for early growth from that applied in the fertilizer.

Very probably some of the nitrogen, potash, and other nutrients essential for growth that are stored in the fleshy roots of asparagus contribute to the production of young spears as they develop in early spring. Thus, it should not be necessary to apply fertilizer for an asparagus crop until harvest is completed. Delaying fertilization until after harvest in many cases could reduce early weed growth.

The plant has an extensive network of fleshy roots with a lateral spread of 3 or 4 feet, filling the soil to a depth of about 3 feet. Scattered rooting extends to about 6 feet laterally and 10 feet vertically. As many as 150 roots varying in diameter from one-eighth to one-fourth inch have been found growing from a 6-inch section of rhizome or crown of a six-year-old plant. Small new fibrous feeder roots develop every spring from the fleshy roots and become active in the absorption of water and plant nutrients.

The native nutrient supply of the soil and the nutrients in applied fertilizer are rather completely contacted and may be utilized for an eight- to 10-month period every year. From representative samples of six-year-old plant roots, it was calculated that an acre of asparagus contains approximately 57,000 pounds of fleshy root material.

On 40 Michigan farms on which asparagus was grown, the crop was being fertilized with nitrogen at rates varying from 50 to 450, phosphate from 0 to 250, and potash from 0 to 350 pounds per acre. Yields on these farms, calculated as cut asparagus, ranged from 2450 to 6300 pounds per acre. However, there was no apparent correlation between rate of fertilizer application and either plant mineral composition or yield.

The fern growth from one-yearold roots is spindly and seldom attains a height of over 3 feet. However, by the fourth or fifth year, eight to 15 or more stems varying in diameter from one-half to threefourth inch and in height from 5 to 7 or more feet are produced by each plant following the normal spear harvest season. After a planting has reached this age, it has evidently

NEW SUGGESTED FERTILIZER PRACTICES FOR ASPARAGUS

All application figures are in pounds per acre with low values suggested for soils testing "high" and high values suggested for soils testing "low." N—nitrogen; P.O:—phosphate; K₂O—potash.

Year of Crown Planting:

manured.

20-40 N, 40-80 P₂O₅, 40-80 K₂O (5-10-10, 10-20-20).

Broadcast and plow in before trenching for crown setting.

30-60 P₂O₅ broadcast down the trench {20%

30-60 P₂O₅ broadcast down the trench (20% superphosphate).
 30 additional N at first cultivation (Am-

monium nitrate).
Omit on soils built up with legumes or

2nd & 3rd Year Following Crown Setting: For plant development—

25-50 N, 50-100 P₂O₅, 50-100 K₂O Broadcast and disk in during spring fitting of the field.

30 additional N after soil warms up. (Omit on soils that are being manured.)

4th through 7th Year and Then Repeated: For maintenance and crop nutrient removal—

40-60 N each year after harvest is completed. Omit if manured.

5th year-60-120 K₂O. Omit if soil tests high in K or is being manured.

7th year-30-60 P2Os, 30-60 K2O. None if soil tests high in P and K.

If crop has been harvested by snapping, use the low values; if yields of cut grass are higher than 5500 pounds per acre, increase fertilizer proportionally. If crop has been over-fertilized for a number

If crop has been over-fertilized for a number of years, apply N alone until soil tests indicate a reduction in fertility levels.

Have soils tested to be sure of their nutrient status.

attained maturity. On the 40 farms surveyed, the fresh weight of the fern produced averaged 9500 pounds and varied from 2100 to 16,800 pounds per acre.

Before the fern dies in the fall, a major portion of its easily soluble carbohydrate content is translocated into the crown and fleshy roots. Generally, the following spring the dry fern is disked into the soil and its mineral content again made available to the living portion of the plant through microbial and chemical decomposition.

The nutrients accumulated by a single season's fern growth are, therefore, cycled over and over again if they are not lost through erosion or fixed in unavailable form by chemical action in the soil. Certainly, the extensive active living root system absorbs most of them before they are fixed or leached from

The figures in the accompanying table indicate the calculated quantities of nitrogen, (N), phosphate (P_2O_5) , and potash (K_2O) found in 5500 pounds of cut asparagus based on samples from the 40 farms surveyed. The mineral quantities returned to the soil in the fern and the mineral content of the roots are also indicated. Values for other crops are shown for comparison.

It is interesting to note that the quantity of N-P₂O₅-K₂O removed by a 5500-pound per acre asparagus crop is quite similar to that harvested in a 500-bushel per acre apple crop, and is surprisingly low, by comparison, with the quantities removed by the annual crops.

A high-yielding asparagus crop removed only 23 pounds of nitrogen, while the grain in a 100-bushel corn crop contained 95 pounds; the tubers in a 500-bushel potato crop, 108 pounds; and a 700-crate celery crop, 160 pounds of nitrogen per acre. All the crops require additional quantities of nitrogen to produce their foliage.

In perennials, with their welldistributed active root system, nitrogen should be almost completely recovered from decomposing plant material and not lost through leaching.

Experiments conducted all over the world have indicated that tree

CROP NUTRIENT UTILIZATION (In pounds per acre)

CWT*	N	P ₂ O ₅	K ₂ O
Asparagus—cut spears 55	23	7	23
Asparagus fern 95	99	23	115
Asparagus roots570	156	83	203
Field Corn-grain 56	95	38	25
Total in crop	158	58	117
Potatoes-tubers300	108	42	190
Total in crop	208	59	280
Tomatoes-fruit	69	38	175
Total in crop	129	47	265
Celery-plant630	160	135	470
Apples—fruit240	25	9	38

*Yields in hundredweight per acre.

fruits show little response to phosphorus. The phosphorus removed in a 5500-pound per acre asparagus crop is less than a fifth of that removed in a 30-ton tomato crop. Since this is the case, and if many of the present phosphorus recommendations for asparagus are correct, the tomato crop is probably not being satisfactorily fertilized.

In mature asparagus plantings, with their well-developed root systems functioning for most of the year, little additional phosphorus in fertilizer application would appear warranted.

A tomato crop of 30 tons contains over seven times, and a 700-crate celery crop over 20 times as much potash as was found in a 5500-pound per acre asparagus crop. Certainly in the light of experimental evidence, indicating that 400 to 500 pounds of potash is adequate for celery, potash application to asparagus should be substantially lowered in many areas because much if not all of the potash found in the fern is recycled through the plant year after vear.

On the basis of a careful evaluation of the facts above, and an understanding of the perennial nature of the crop, a drastic revision downward in the quantities of fertilizer applied to mature plantings appears

highly desirable.

In the California asparagus growing region and a few other areas where the soils are naturally high in available phosphate and potash, the mistakes unconsciously made in fertilizing asparagus in other areas have not occured. Very little if any phosphorus or potassium is used on asparagus in California.

In other areas the vitally important need for these nutrients during the early developmental stages in the growth of the crop has been continued after the independent and conservative nature of the mature plants made them unnecessary. Unfortunately, the tolerant nature of the crop to fertilizer injury gave little indication that fertilizer applications were too high.

On established plantings, the suggested program should reduce the cost of asparagus fertilization, from previous recommendations, by from \$12 to over \$30 per acre. An out-ofpocket saving to the asparagus growers of the United States and Canada of a minimum of \$1 million annually. In addition, there is a saving in the labor cost of application, and the possibility of a reduced weed problem and perhaps higher productivity and extended longevity.

Because of the large quantity of roots developed by high producing asparagus, the crop required a well granulated soil in a high state of tilth to facilitate adequate subterranean aeration. This condition of soil structure is found in high producing fields and is due to both the soil type and careful husbandry.

Soil compaction and inadequate internal drainage are probably more responsible for low asparagus yields than inadequate fertilization. Large quantities of fertilizer have frequently been wasted in attempts to increase the productivity of low yielding plantings, when the fundamental difficulty has been due to poor aeration in the subsurface soil resulting from poor soil structure.

A careful preplanting soil building program, using deep rooted legumes and/or the incorporation of other types of organic matter for a few years prior to planting asparagus would do much to insure suitable aeration conditions.

Liming soils on which asparagus is to be grown to bring the pH value to 6.2 to 6.5 to a depth of 12 to 18 inches will promote soil particle aggregation and flocculation and result in improved aeration.

Setting the crowns in soil that has not been puddled or compacted will help the new planting become better established the first season.

The application of manure will promote improved granulation and better internal soil aeration, highly desirable soil properties for the development of healthy, vigorous, fleshy roots.

Proper timing in disking and dragging the asparagus field under the wet conditions of early spring will help maintain structure and prevent clod formation, thereby promoting desirable soil physical conditions for satisfactory root performance.

The building up and maintenance of a desirable soil structure in asparagus fields will pay large dividends in terms of longevity and productivity and is probably more important than fertilization to the mature planting. THE END.



You can put the Wisconsinpowered Ariens Trans-A-Matic Tiller to work as soon as ground conditions permit. You can keep on tilling without missing a lick. And when the job's done, the 18hp heavy-duty Wisconsin makes the tiller available for preparing seedbeds and for mulching.

In heavy-duty tilling, as on other tough jobs, it's the power that counts. The Model THD engine is precision-built to both drive and operate the tiller - and to withstand the grueling power demands. Its high torque eases it through the heaviest and hardest sod without stalling or time loss.

The THD has tapered roller bearings to absorb all thrusts. The engine also features Stellite exhaust valves and inserts plus positive rotators, for better engine performance and to give up to 5 times longer valve life!

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Don't Guess

The relation between your soil and profitable vegetable production is becoming more and more important. All profit-minded growers are carefully analyzing their soil so that the right amounts and kinds of fertilizers are



used. There is no sense in adding potash to your soil if you have an overabundance. Such a practice is a waste of money and effort. Growers on the Eastern Shore are having wonderful success with the commercial vegetable soil testing kit. Developed by the foremost manufacturer of soil testing equipment, the new unit should be part of your cultural program. Write to Nelson Latremore, Sudbury Laboratory, Dept. FG1, Box 1324, Sudbury, Mass.

Protect Two Ways

Here's double-barrelled protection for your valuable vegetable crops in one easy operation. The new "Protecto-Zone" granular type of chemical applicator protects crop profits two ways—with the application of herbicides that give, first, weed zone protection and, secondly, root zone protection from soil insects. Drop



a line to Howard Wolgamott, of Ezee Flow Corporation, 3428 N. Harlem Ave., Chicago 34, Ill., and he'll send you a "Facts Folder" on this piece of equipment which will give you all the details.

New for You

Good and True

I thought you might be interested in seeing how one of the leading seed companies produces high grade seed for you. Below are pictured several rows of bagged single plant selections of onion on their breeding farm. As soon as the seed heads start to develop, the plants are bagged to prevent cross pollination. The seed harvested from these individual plants is increased by bagging several plants together, and



later, larger increases are made by planting each pureline under a long cage. For a complete catalog of Keystone seeds, write Bill Carter, of Corneli Seed Company, 101 Chouteau Ave., St. Louis 2, Mo.

Cool Man Cool

This heading may be a bit facetious; still it does describe the importance of ventilation in greenhouse growing during the entire year. It has been proven that ventilation increases quality plant growth and subsequent profits. Equipped with a mixer for winter ventilation, the Turbulator can do a remarkable job for you. This new grower-tested fan moves large quantities of air in a flat-shaped cone pattern. The installation of a Turbulator in your greenhouse will



quickly prove its worth. I've seen one in use in a Cleveland tomato greenhouse and in one year it has paid for itself. Get all of the facts by writing Norm Augsburger, Acme Engineering Company, Muskogee, Okla.

Cuts a Wide Swath

Here's a boom sprayer that covers an area 80 feet wide and sprays up to 40 acres an hour. Think of the time and labor saved with a unit of



this type! This trailer-mounted sprayer has a 42-foot boom that will cover 12 rows. By removing the two end sections, it will cover 8 rows. The addition of special jet nozzles to the ends of the 42-foot boom increases the coverage to 80 feet. One of the new unusual features of this sprayer is that the boom height can be controlled hydraulically from the driver's seat. The sprayer is available with a 200-gallon fiberglas tank. It would be a good idea to write C. D. Davenport, of Century Engineering Corporation, Cedar Rapids, Iowa, and ask him for the complete story.

I've Seen It Work

Last summer in western New York state I saw the new bean harvester in operation. The picking job the machine did was just about perfect. The grower who had just purchased it told me that it was trouble-free and would pay for itself in one season. The new harvester is equipped with



a creeper gear, a hydraulic motor on the cleaner, has great overall horse-power, and is adaptable to palletizing, bagging, and bulk handling. Every profit-minded grower should look into the new Chisholm-Ryder harvester unit. Write Earl McKinley, Chisholm-Ryder Co., Inc., Niagara Falls, N. Ý., and he will be delighted to send you full particulars.

Better Seed Packaging

An important new development in seed packaging will help all growers. The new material is waterproof and can be burned in the fields after use. Called Clupak extensible paper, it's similar to regular kraft paper. During its manufacture, it is compacted so that it has an added measure of "give" or "stretch" enabling it to withstand greater impact or use than anything else available. One of the country's largest seed companies has adopted the new material because of greater ease in handling and grower convenience in the field. Ferry-Morse seed bags for the commercial grower are now polyethylene laminated and made of Clupak and give the highest degree of protection. Growers have reported that where relative humidity is high, where water has been found in seed storage places, the Ferry-Morse seed packed in Clupak containers is undamaged. In addition, growers like the new package



because it can be burned and doesn't have to be taken away as the old cotton and burlap sacks did. Why not write Bill Graves, of Clupak, Inc., 530 Fifth Ave., New York, N. Y., and ask him for full particulars?

Harvest Early—Protect Late

Harvesting field-grown leaf lettuce 19 days ahead of the normal market date for a cash bonus of \$1.76 per carton-pulling radishes 14 days early at a premium of 40 cents per dozen bunches-picking ripe, fieldgrown tomatoes nearly a month early for a 23 cents-per-pound premiumsuch are the results of commercial field tests of a new, inexpensive portable crop cover. Two models of the new structure, a "quonset-type" tubular framework covered with a sleeve of one of DuPont's new agricultural films, will be made available to U.S. farmers and home owners in early 1961 by Waco-Porter Corporation of Minneapolis and Cleveland, exclusive licensee in this country. One model—trademarked "Porta-Green" —is designed for portable row covering, the other—designated "Perma-Green"—provides a semi-portable greenhouse. The framework of the structures is made of prefabricated 1-inch galvanized steel tubing. Each knocked-down unit consists of three



curved ribs, four stretchers, and two brace rods, all of which lock in place without bolts or screws. A length of specially formed DuPont film tubing is fitted over the framework. You will want to know more about these portable covers. If you will write to the office nearest you, you will get full details: Growers Equipment Co., P. O. Box 7491, Parma 30, Ohio; P. O. Box 104, Schiller Park, Ill.; or P. O. Box 8308, St. Louis Park 16, Minn.

Control Is Important

The Troyer Brothers in Waterford, Pa., just finished building a 60,000-bushel potato storage. They wanted to maintain relative humidity at about 90 to 95% so they used nearly 18,000 square feet of Visqueen polyethylene film as a vapor barrier in the walls and ceilings. Their pota-



toes are used to make potato chips and a vapor barrier is vital for keeping the potatoes in good condition for chipping. They estimate the storage cost is about 47 cents per bushel. If you will write Bill Heinemann of Visking Company, 6733 W. 65th St., Chicago, Ill., he will be glad to tell you how you can use their polyethylene sheeting to save money.

Progress Report

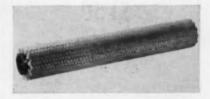
One of the exciting aspects of my job is inspecting new equipment, and I want to tell you about a real "find" right here in Ohio. It's the BSE knapsack sprayer-duster which will fit into your vegetable operation perfectly. Greenhouse growers are enthusiastic about a number of features such as the recoil starter, the accurate spray control mechanism which tells you exactly how much spray you are using, and the fact that the motor is mounted on springs so that you get no vibration when the unit is running. The BSE has a plastic tank which



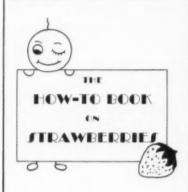
holds ½ more than most knapsack power sprayers and is lighter and easier to use. John Gormsen, of Gormsen Tiller & Supply Co., P. O. Box 8915, Strongsville 36, Ohio, will rush details to you. Why not drop him a line?

Minimum Cost

There's a new rotary type cylinder brush you ought to know about in time for this season's operation. The brushes have plastic impregnated fibre cores to provide maximum performance at minimum cost for your potato or vegetable washing machine. The new core material is resistant to salts and alkali that probably caused you trouble before this if you irrigate heavily. This new low-cost line of



rotary brushes will be known as Flo-Pac Rotary Type Cylinder brushes. L. C. Henninger, of the Flour City Brush Company, 1501 Fourth Ave. S., Minneapolis 4, Minn., will be happy to send you full information.



The Strawberry Gremlin is Back! This cute little fellow who knows all the do's and dont's of strawberry growing is again featured in our

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"HOW TO BOOK ON STRAWBERRIES"

Order your copy now!

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AMERICAN VEGETABLE GROWER
Willoughby, Ohio

GREENHOUSE CROPS

Light and Early Fruit Set

WINTER'S dark, cloudy weather and its effect on growth, flowering, and fruiting of greenhouse tomatoes presents a difficult problem to the grower trying to determine when he should fertilize his crop.

Fertilizer applications to plants with apparent vigor in periods of reduced light intensity is risky business. Photosynthesis in greenhouse tomato leaves is limited in January and February. Research has shown that good pollen development depends on a starch or carbohydrate reserve. Maintenance of a high carbohydrate reserve is necessary for viable pollen and early fruit set.

Flower development may continue during dark weather—if there is an adequate supply of nitrogen. Nitrogen is easily translocated from the older parts of the plant to the growing tips and flowers.

If there is a low carbohydrate reserve, flowers will form and appear normal, but pollen grains may be sterile.

The problem of reduced light intensity has been well illustrated by Dr. Freeman S. Howlett, chairman of department of horticulture, Ohio State University, Columbus. By using cheese cloth growth chambers to simulate winter light conditions, he is able to show the reaction of tomato plants to reduced light intensity compared to full light check plants.

Increased stem length and decreased stem thickness characterize the shaded plants. Rate of photosynthesis decreases. Apparent increased vegetative growth is at the expense of stored or reserve carbohydrates. Even though flowers emerge on the shaded plants, pollen development degenerates and fertilization of flowers is retarded.

This same situation happens many times in commercial greenhouses. Control of vegetative growth to conserve carbohydrates and keep a reserve in early fruiting periods requires skillful management. The grower can manipulate temperature and water to counter high soil fertility and bright, clear weather.

A heavy set of the bottom cluster has its disadvantages because the drain of the carbohydrate reserve under low light conditions may adversely affect the second or third cluster. At times depletion of the reserve to mature bottom fruits retards development of the fifth and sixth clusters.

Growers often have their own methods of determining when to fertilize early in the crop. Some wait until the third cluster develops. Others observe growth rate of laterals or suckers; a nitrogen deficient plant results in fewer suckers, decrease in stem length, and thickness of stem.

Tissue Testing for Nitrogen

WHILE some growers rely on experience and visual observation, it is easier to determine when to sidedress greenhouse tomatoes with nitrogen by using tissue tests.

Nitrogen deficiency is evident in reduced cell division and growth, smaller flowers and size of pistil. Reduction in stem length, growth, and number of suckers can indicate a lack of nitrogen.

Ten years ago, Victor E. Kierns, a former extension vegetable specialist in Ohio, urged growers to try tissue testing for nitrates prior to fertilizing greenhouse tomatoes. Those recommendations are still sound. Many factors can interfere with tomato fruit set.

The grower must not overwater, apply too much nitrogen, or carry too high a night temperature when light has been cloudy. Blossom drop will invariably follow if these conditions occur. Management of these factors will help offset the effect of poor light and improve fruit set.

Ohio State University's department of horticulture has worked out a set of directions for making microchemical tests for nitrate nitrogen using diphenylamine.

Diphenylamine can be prepared by your local druggist. One gram of diphenylamine is dissolved in 100 milliliters of 75% concentrated, chemically pure sulfuric acid. The solution should be stored in an upright position in green or amber medicine dropping bottles. It is highly caustic and should be kept in a cool, dark location. The solution should be replenished if its color changes.

Procedure is to cut four thin whole cross-sections of the top stem or leaf petiole of tomato plants selected at random with a safety razor blade. These stem sections are placed in a dry, clean well of a spot plate (available from LaMotte Chemical Products Company, Chestertown, Md.). Four to six drops of diphenylamine solution, depending on size of sections, are added and mixed with a clean glass stirring rod.

Nitrates available from the cut stem sections react with diphenylamine to give a blue color. One to two minutes are necessary for maximum color reaction to take place following breakdown of cell tissues by the sulfuric acid. The length of time may depend on amount of nitrates present, temperature and age of solution, and age of tissue tested. When more than one test is made, use a uniform number and thickness of stem sections and drops of reagent.

Any blue color indicates a temporary reserve of nitrates in the plant tissue. Darker blue means more reserve nitrates present. If the color is dark blue or blue black, no nitrogen should be needed for several



To test nitrate nitrogen in tomato plants, you need a reagent (diphenylamine), spot plate, safety razor blade, cross section of top stem.

days regardless of light conditions or time of year. However, the amount of nitrate is not directly proportional to the intensity of the blue color once a deep blue has been obtained.

The relative amounts of nitrate nitrogen can be indicated by the following symbols:

0-None present

1-Recognizable trace

2-Small amount (solution light blue or pale violet blue

3-Moderate amount (solution darker but white background of plate still visible)
4-Considerable amount (white background of plate not visible, solution deep blue)

5-Large amount (solution blue-black) Repeated use of the tissue test will show the amount of available nitrate in the stem tissue. It is important to continue this simple, quick test weekly or bi-weekly. Record your results numerically as indicated by the above symbols. Fertilize with assurance that excessive nitrogen will not affect blossom set. A sheet of instructions, followed by growers in the Cleveland area, is available from Cuyahoga County Extension Service, 506 The Arcade, Cleveland 14, Ohio.

During periods of low light, light blue color indicates sufficient nitrates are present, and no nitrogen fertilizers would need to be applied immediately. This test should be re-run



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HANDBOOK FOR VEGETABLE GROWERS

by James E. Knott

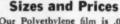
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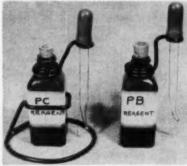
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in a few days as the reserve of nitrates may become exhausted.

The diphenylamine solution should be tested for activity before use or if its color has changed. Place a small amount of reagent on the well of a spot plate and stir it with a leaf



Courtesy: University of Illinois

How often do you knock over a reagest bottle while testing soil? Does dropper roll onto floor? Inexpensive, plastic-covered copper wire can be best to form stand for bottle; holder around neck of bottle is for dropper.

petiole known to contain nitrates. The solution should quickly turn blue-black if nitrates are abundant in the petiole.—Fred K. Buscher, Cuyahoga County (Ohio) Agent.

Tomatoes Under Plastic

NE Georgia grower who has found the secret of growing winter tomatoes in plastic greenhouses is W. E. Sams, of Worth County. He's been marketing tomatoes weighing as much as 3/4-pound each.

Sams has five 25x200-foot plastic greenhouses, with 1030 plants of variety Michigan-Ohio F, hybrid in each house. This variety has set as many as 22 fruits and blooms to each cluster.

The plants were begun in flats, transplanted to peat moss cups, and then transplanted in the cups to the soil on September 5. They were staked, pruned, and artificially pollinated. The first fruits appeared on the vines September 28.

Before planting Sams fumigated the soil to control root-knot nematodes, then worked in 6 inches of old sawdust. Lime was applied at the rate of 2000 pounds per acre and 4-12-12 fertilizer at the rate of 3000 pounds per acre. The plants were watered as needed.

The houses are heated and equipped with fans to maintain proper temperatures. Night temperatures were kept below 65° F. and daytime temperatures at between 70 and 80° F.

Tomato for Spring or Fall

SPARTAN RED 8, a new variety suitable for greenhouse culture whether the crop is grown for fall or spring harvest, has been released

by Michigan Agricultural Experiment Station, East Lansing.

Fruits of the new variety are medium to large sized, globe shaped, and average 5 to 6 ounces in weight. They are smooth and firm fleshed. Spartan Red 8 ripens uniformly to a deep scarlet. Vine of the new variety is indeterminate. Foliage is sparse compared to that of most greenhouse varieties. Flowers develop early and fruits set freely at high temperatures often experienced during the early fall.

Spartan Red 8 is not resistant to fusarium wilt. Growers who use the new variety will have to follow the

usual control measures.

Seed of Spartan Red 8 is now being tested and should be available in 1962.

A Helpful Guide

INIVERSITY of Kentucky has published a bulletin on diseases that every grower with a plastic greenhouse should have in his refer-

ence library.

Diseases of Crops in Plastic Greenhouses contains full descriptions of such diseases as tomato blossom-end rot: fusarium wilt of tomato: verticillium wilt of tomato; tomato leaf mold; late blight of tomato; early blight of tomato; gray mold of let-tuce, beans, and other vegetables; sclerotinia rot of lettuce and other crops; and root-knot nematode.

Authors W. D. Valleau, E. M. Johnson, and R. A. Chapman have included recommendations for treatment of those diseases and suggestions on how to prevent their spread. Other sections emphasize the importance of ventilation and heating, highly productive soil, and disease-

free plants. Copies of Diseases of Crops in

Plastic Greenhouses may be obtained by writing University of Kentucky, Lexington, for Bulletin Misc. 201 (Filing Code: 17).

Answer to YOU be the EXPERT!

(See page 47)

Severe phosphorus deficiency aggravated by a low soil pH. Seed-ling tomatoes are particularly sensitive to low phosphorus and acid soils. Larry should have had this new soil tested before bringing it into the greenhouse. He should have added lime to raise the pH to 6.0 and phosphorus according to the soil test.

To improve these poor plants, he should water them weekly with a soluble fertilizer high in phosphorus; for example 10-52-17 or 10-50-10 at the rate of one ounce

in a gallon of water.



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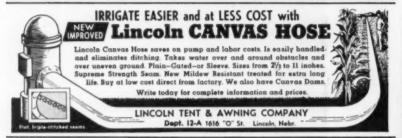
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NJVGA NEWS

Congratulations

MORE than 400 members attended National Junior Vegetable Growers Association's annual meeting, held in December at Colorado Springs, Colo.

The three contests—Production and Marketing (including Fresh Market, Canning, and Variety sections); Demonstration and Judging; and Grading and Identification—sponsored by NJVGA to encourage interest in the culture, marketing, or utilization of horticultural crops

National winner of the Canning Crops section was Alvin W. String, Jr., Harrisonville, N. J. String, who

attracted keen competition.



Dr. Edwin Crosby (left), assistant director, Raw Products Research Bureau, National Canners Association, congratulates Alvin J. String, Jr., national champion in Canning Crops contest. Other winners are (left to right) Erale Ray Foster, Richard D. Arnold, and Donald E. Martin.

previously won top honors as New Jersey state champion and as Eastern Regional champion, grew 9 acres of tomatoes with an average yield of 24.17 tons per acre. He sold his crop to California Packing Corporation for a profit of \$2333.10.

Regional winners were: Central—Richard D. Arnold, Janesville, Wis., who grew 4949 pounds of peas per acre on a 19.9-acre plot and made a profit of \$1214.99; West—Ernie Ray Foster, Ridgefield, Wash., who grew one-half acre of Blue Lake beans for a profit of \$257.37; East—Donald E. Martin, Chambersburg, Pa., who grew 2 acres of tomatoes for a profit of \$688.49; and South—Wallace Kelly, Six Mile, S. C., who grew 3 acres of pimiento peppers for a profit of \$656.25.

Jill Armstrong, from Illinois, was named national winner in the Fresh Market division and Ruth Skinner, Union, Miss., national winner in the Variety Trials.

Indiana took top honors in the Grading and Identification contest

For information on NIVGA write Grant B. Snyder, French Hall, University of Massachusetts, Amherst, Mass.



NJVGA officers for 1961 are (left to right) David Brengle, Winterhaven, Fia., secretary; William Lorenz, Chicago Hgts., Ill., director, Central Region; Jeannean Murphy, Summersville, W. Va., director, Northeast Region; James Parochetti, Spring Valley, Ill., president; Sandy Karn, Tyner, Ind., vice-president; Ruth Skinner, Union, Miss., director, Southern Region; Carol Knecht, Golden, Colo., director, Western Region.

with winning teams in both the FFA and 4-H divisions. Louisiana's Phyllis Peron and Evelyn Fusilier won the Demonstration contest.

Outgoing president William Lorenz, Chicago Heights, Ill., received the top Achievement Award. Judging was based not only upon record in competition but evidence of leadership, civic activity, and personal qualities.

GREENHOUSE PLANS

AN excellent set of plans for a temporary greenhouse has been published by Virginia Polytechnic Institute Agricultural Extension Service. The 21x40-foot structure was built at VPI with unskilled labor at a cost of less than \$500. This cost includes a heating system (heater and circulating fan). The plan for construction may be extended to 120 feet. Materials required for construction of a semi-permanent greenhouse are also listed.

Write to Virginia Polytechnic Institute, Blacksburg, Va., for VPI Extension Service Circular No. 760, Plastic Greenhouses, which includes the plans. For specific information on starting plants in this type of structure, write for Circular No. 764, Starting Early Plants.

REMOTE CONTROL

THE push button age is advancing in agriculture. Now growers may soon be able to turn their irrigation pumps on and off without ever leaving the house. Engineers at University of Arizona are experimenting with remote control of irrigation pumps, using a portable radio transmitter that weighs about 5 pounds and is powered by the electrical system of a pick-up truck. Researchers say the device also can be wired into the 110-volt system found in most homes.

MARCH, 1961



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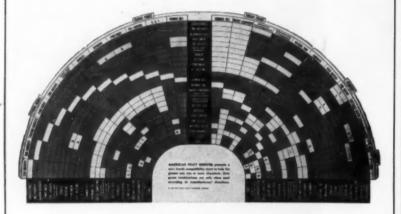
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TUTTLE'S RED BARN

(Continued from page 11)

Barbecue, and Wonderful, with Barbecue being the main variety. They have built up a reputation for quality corn and Hugh says they have done it largely with the variety Barbecue.

Perhaps 10 generations farming the same land for over 300 years helps to pass on from one generation to the next a great admiration and respect for the soil. Maybe this partially explains Hugh's great interest and devotion to conservation. His contour-terraced fields, the turfed watershed, and the four farm ponds reflect a more than academic interest in conservation. Among the farm equipment are two complete irrigation systems which are interchangeable. The sprinkler heads are Rain Bird and Hugh uses both Ireco (Riverton, N. J.) and Speed Lock (Sunset Engineering, Calif.) irrigation pipe. Rainmaker pumps powered with Wisconsin engines are used. These are used for irrigating crops and also for frost protection in the spring and the

Hugh uses local newspapers in a manner to provide both advertising and promotion. His advertisements nearly always carry a picture of Tuttle's Red Barn and are in the form of a short story indicating what is available or what will be available in the next few days. He usually writes the ads himself and frequently includes a message of thanks to customers for their business. Hugh says that at first he did not know what to write in the ads so he wrote them as though he were writing a letter to a personal friend. He received so many comments about the ads that he has continued to use the same style. He writes about the "pea-picking back-aches" in order to have adequate supplies of fresh peas on hand; or about staying up most of the night irrigating in order to have luscious, juicy melons at the peak of quality for the weekend. He frequently includes the name of the roadside stand manager in order that customers may call him by name and thereby create a more friendly and personal atmosphere at the stand.

Last year he started using radio ads as well. He is convinced that newspaper and radio ads are each worthwhile, and that the two combined are better than either one separately. When time permits, he goes to the radio station himself and is interviewed by the announcer or disk jockey about what vegetables are available, economical, or especially good now. For radio purposes he prefers frequent short ads rather than a few longer ones. On a selected

weekend when produce is in great abundance he may have a radio ad every hour or so during each day. He has doubled his advertising budget this year and is convinced that it has been worthwhile.

Yes, Hugh has an advertising budget and complete records of his enterprise in order to analyze the various parts. From his records he can tell how many ears of corn were sold on any particular day. He can evaluate the results of his ads.

What Hugh calls his field crew is composed of two year-round men and two additional men during nine months of the year. During peak harvest periods additional pickers numbering up to 10 or 12 are employed. Tomato grading is done at the roadside stand but washing, grading, and packing of all other produce is done prior to delivering it to the stand.

He uses both sprays and dusts in his pest control program. The pesticides which he relies on most heavily are the herbicides Dow Premerge, Vegadex, and Stoddard Solvent; for fungicides he relies largely on Manzate and Zerlate; and the insecticides which he uses most are DDT, methoxychlor, and malathion. Hugh has two sprayers, a Century and a Myers.

With Hugh's interest in soils and soil conservation it is not surprising that he places considerable interest upon organic matter in the soil. He has been well schooled in the influence of organic matter upon soil waterholding capacity, soil aggregation, and soil porosity. He uses poultry manure, green manure crops, and cover crops regularly.

For overwinter cover crops he likes annual brome grass whenever it is possible to get the cover crop planted in August. He uses winter rye as a cover crop for those areas where planting must be delayed until September or October. His soil management program includes taking the soil out of vegetable production periodically and raising a crop of clover to plow under as a green manure crop. Complete fertilizer and supplemental nitrogen applications are used liberally.

Tuttle's Red Barn now represents a well-established, well-managed, and growing vegetable business run by a man who knows his business, who is eager to learn more and make changes as conditions require. The Tuttle Farm has been in existence for 318 years; the vegetable enterprise has been successful for 51 years. Indications are that it will continue for many years, and who knows, perhaps even for 10 more generations to come.

The End.

CONTROL SPRAY DRIFT

GROWERS can do much to control drift of pesticides during application and to reduce residue problems, Norman B. Akesson and Wesley E. Yates, associate professors of agricultural engineering, University of California, Davis, told members of American Society of Agricultural Engineers at a meeting held recently in Memphis, Tenn.

Akesson and Yates said some chemicals have drifted as far as 22 miles during application. They listed four main points to consider in controlling insecticide drift and residue.

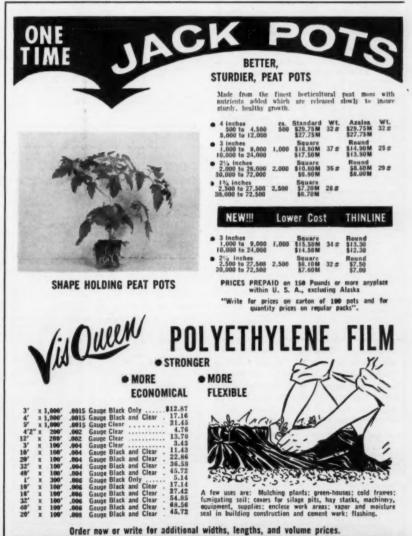
1) Several materials function best as dusts and poor control may occur when a spray formulation is used.

2) Whenever chemicals are likely to drift, spray equipment should be of a type that gives a medium to coarse droplet spectrum from either ground or aircraft equipment.

3) Microclimatology of the area in which the chemicals are being applied should be well known. There are usually three or four patterns which the weather will follow on any given day. These can be predicted from past data using information obtainable from small recording weather stations.

4) If there is any question about contamination of a crop, samples should be taken to a laboratory for analysis. Often a prediction can be made when the crop can safely be harvested.

Construction details for Cornell University plastic panel greenhouse, names of suppliers of materials, films, and adhesives for plastics, and reprints of current articles on plastic greenhouses are available from AMERICAN VEGETABLE GROWER, Willoughby, Ohio, for 50 cents a set.



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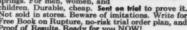
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DEALERS WANTED

Vegetable Grower

You're on the Hot Seat!

THE events of the last month should have convinced any doubters that the AFL-CIO's Agricultural Workers Organizing Committee is playing for keeps in their attempt to unionize farm workers.

Though you in Virginia . . . or Wisconsin . . . or New Jersey . . . or Georgia might think you're safe—California's a long way off—forget it! You're on the hot seat just as much as the embattled lettuce grower in the Imperial Valley. And you had better decide right now what you're going to do about it!

That the AWOC will use any measure, even violence, to force their foot into agriculture's door has already been proven.

On February 9, culminating a month of strikes, pickets, and sit-down demonstrations, an ugly mob armed with clubs and rocks forced its way through the gates of the Joe Corona labor camp near Brawley and tried to drive out 60 Mexican nationals (braceros) housed there. In the ensuing struggle, four men, including two braceros, were injured.

Most of the rioters were members of AWOC and United Packinghouse Workers of America. Thirty-eight were arrested and as we go to press Imperial County District Attorney James E. Marable is preparing to charge some of those arrested which counts of conspiracy to commit arson, riot, and assault with a deadly weapon.

Before this outbreak of violence the Imperial Valley was the scene of such continuing unrest that the Mexican government asked that their Nationals be removed from strike-bound lettuce fields. U. S. Secretary of Labor Arthur Goldberg concurred with the request, stating that labor disturbances in Imperial Valley present "a menace to the health and safety of Mexican national workers employed on struck fields."

What did these growers do when faced with pickets, sit-downs, and removal of bracero help? They banded together to form a firm, united front against union activities. An aroused public flocked to the strike-bound fields to help in the harvest of the \$20 million crop. Some 300 growers from all parts of the state formed an automobile caravan and brought both moral and physical support to the hard-pressed lettuce growers.

And with the help of fellow growers and sympathetic townspeople, 9777 carlots of lettuce were shipped compared to 9437 to the same time last year.

Although he may be 500, 1000, 2000, or even 3000 miles away, the California grower needs your help. Don't sit back with a sigh of relief because your area was not chosen as the battleground for this struggle to unionize farm workers.

To those who will say "What can I do?" here are a few suggestions:

Get behind your local, county, state, and national farm organizations. Forget petty differences that might divide you and throw your support solidly behind the group you want to be agriculture's spokesman.

Be your own public relations man. Start accenting the positive about agriculture to every one you meet. A tremendous amount of influence can be wielded through a casual conversation with an interested party.

Keep informed. Know what legislation is being proposed in your city, county, state, and federal governments. Keep your Congressmen informed on how you stand on issues upon which he must cast his vote. It was once said by a member of the Senate that one telegram carried as much weight as 100 letters. If the measure is important to your being, don't hesitate to telegraph your opinion to your representative.

And above all, keep your own house in order. Be above reproach in your association with migrant or local labor and in the housing you provide your migrant workers.

These suggestions may seem insignificant to you. But the best way—perhaps the only way—to fight the spread of unionism to agriculture is to remove any and all areas where a worker might gain by carrying a membership card from AWOC.

Buy Certified Plants

TO get off to a good start this spring, make sure, if you are in the market for vegetable plants, that you buy them from a recognized dealer.

Many states have regulations which require that all vegetable plants

QUOTE-OF-THE-MONTH

"I love to think of nature as an unlimited broadcasting station, through which God speaks to us every hour, if we will only listen in."

-George Washington Carver

shipped into the state be certified as free of injurious insects, nematodes, and plant diseases. Uncertified plants are subject to confiscation.

Despite such regulations there are flagrant violations occasionally on the part of plant dealers. In New Jersey last year, for example, about a half million uncertified and disease-infected tomato plants found their way into that state where regulations prohibiting such shipments into the state went into effect in 1959. The plants in question were found to be infected with early blight disease and root-knot nematodes.

The plants were seized and destroyed by the state department's division of plant industry—but not before about 5 acres of them had been distributed to growers and planted.

The difficulties encountered in producing a quality crop are numerous enough without starting off the growing season with a strike against you. Whether or not your state has regulations which prohibit the entrance of uncertified plants, make sure the source from which you buy your plants is trustworthy.

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